THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, LONDON [ONE HUNDRED AND SEVENTY-SIX PAGES.] TELEPHONE NUMBER—5356 GERRARD

No. IX. OF VOL. I., 1906. No. 4305. Vol. CLXX. LONDON, SATURDAY, MARCH 3, 1906. PRICE 7d.; POST FREE, 7½d. [Pp. 120+56.

Just Published. Pp. x. + 212, with 39 Original Figs. Price 7s. 6d. net.

GYNÆCOLOGICAL DIAGNOSIS.

A Manual for Students and Practitioners. By ARTHUR E. GILES, M.D., B.Sc. Lond., M.R.C.P. Lond., F.R.C.S. Edin., Gynæcologist to the Tottenham Hospital; Surgeon to Out-patients, Chelsea Hospital for Women.—London: Baillière, Tindall, & Cox.

Just Published. 4to, with 6 Plates. Price 3s. 6d. net.

MALADIES CAUSED by the AIR WE BREATHE, Inside and Outside the Home. By THOMAS OLIVER, M.A., M.D., LL.D., F.R.C.P., Professor of Physiology in the University of Durham; Physician to the Royal Infirmary, Newcastle-on-Tyne. London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

Now Ready. With 9 Plates and 467 other Illustrations. Price 21s. net.

MANUAL of MIDWIFERY. By HENRY JELLETT, B.A., M.D., B.Ch., B.A.O. Dub., F.R.C.P.I., Ex-Assistant Master, Rotunda Hospital, &c.—London: Baillière, Tindall, & Cox.

Just Published. Fifth Edition. With 397 Illustrations. Price 15s. net.

MANUAL of PHYSIOLOGY. By G. N. STEWART, M.A., D.Sc., M.D. Edin., D.P.H. Camb., Professor of Physiology in the University of Chicago, &c. London: Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

Price 2s. 6d. net.

BURSATI. By ALFRED LINGARD, M.B., M.S., Imperial Bacteriologist to the Government of India. Fasciculus I.; with numerous Illustrations. Adlard & Son, Bartholomew Close, E.C.

New and Enlarged Edition. Demy 8vo, 2s.

ESSAYS on HYSTERECTOMY. BY J. BLAND-SUTTON, F.R.C.S. London: Adlard & Son, Bartholomew Close, E.C.

PRINCE'S Particulars Free. MEDICAL LENDING LIBRARY. Prince's Library, 85, Praed-street, Hyde-park, W.

MACNAUGHTON-JONES'

DISEASES of WOMEN.

Ninth Edition. Two vols., 1050 pp., 637 Illustrations, 130 Plates. Price 22s. 6d. net. Baillière, Tindall, & Cox, 8, Henrietta-street, Covent Garden.

587 pages, with 249 Illustrations. Royal 8vo. 15s. net.

LAWSON.—DISEASES of the EYES. Sixth Edition, Revised and Rewritten by ARNOLD LAWSON, F.R.C.S., Assist. Surg., Roy. Lond. Ophth. Hosp. London: Smith, Elder & Co., 15, Waterloo-place, S.W.

Just Ready, Demy 8vo, 324 pp., Illustrated, Price 7s. 6d. net.

THE MEDICAL DISEASES of EGYPT. Pt. I. By F. M. SANDWITH, M.D., F.R.C.P. London: Henry Kimpton, 13, Furnival-street, Holborn, E.C.

THE BACTERIOLOGY of PERITONITIS. By LEONARD S. DUDGEON, M.R.C.P. Lond., and PERCY W. G. SARGENT, M.A., M.B., B.C. Cantab., F.R.C.S. With Illustrations and Tables. Demy 8vo. Price 7s. 6d. net. Archibald Constable & Co., Ltd., London.

LECTURES on TROPICAL DISEASES. By Sir PATRICK MANSON, K.C.M.G., F.R.S., M.D., F.R.C.P. Fully Illustrated. Demy 8vo. Price 7s. 6d. net. Archibald Constable & Co., Ltd., London.

THE SURGERY of the DISEASES of the APPENDIX VERMIFORMIS and their COMPLICATIONS. By WILLIAM HENRY BATTLE, F.R.C.S., Surgeon to St. Thomas' Hospital, formerly Hunterian Professor of Surgery at the Royal College of Surgeons of England, &c.; and EDRED M. CORNER, M.B., B.Ch., F.R.C.S., Assistant Surgeon to St. Thomas' Hospital and the Great Ormond-street Hospital for Sick Children; Erasmus Wilson Lecturer at the Royal College of Surgeons, &c. Demy 8vo. 7s. 6d. net. Archibald Constable & Co., Ltd., London.

ANTI-TYPHOID INOCULATION. Containing an Exposition of the Principles of the Method and a Summary of the Results achieved by its Application. By A. E. WRIGHT, M.D. (Univ. of Dublin). Demy 8vo. Price 3s. 6d. net. Archibald Constable & Co., Ltd., London.

Now ready, in Two Volumes. Crown 8vo, cloth. Vol. I., General Surgery, pp. xx.-763. Vol. II., Regional Surgery, pp. xvi.-723, with 418 Wood Engravings in the Text. Price 21s. net.

MANUAL of SURGERY. By ALEXIS THOMSON, M.D., F.R.C.S. Ed., Assistant Surgeon, Edinburgh Royal Infirmary; Surgeon to the Deaconess Hospital, Edinburgh; and ALEXANDER MILES, M.D., F.R.C.S. Ed., Assistant Surgeon, Edinburgh Royal Infirmary; Surgeon to Leith Hospital. Young J. Pentland. Edinburgh: Teviot-place. London: 39, West Smithfield, E.C.

Now ready. Third Impression, 8vo, cloth, pp. xvi. 614, price 16s.

THE PRINCIPLES of TREATMENT and their APPLICATIONS in PRACTICAL MEDICINE. By J. MITCHELL BRUCE, M.D., F.R.C.P., Physician to, and Lecturer on the Practice of Medicine, Charing Cross Hospital; Physician, Hospital for Consumption, Brompton, London. Young J. Pentland. Edinburgh: 11, Teviot-place. London: 39, West Smithfield, E.C.

ASHTON'S PRACTICE OF GYNECOLOGY TWO EDITIONS IN SIX MONTHS.

See SAUNDERS' Advertisement on Page 5.

Now Ready at all Booksellers.

RECENT ADVANCES in PHYSIOLOGY and BIO-CHEMISTRY. Edited by LEONARD HILL, M.B., F.R.S., Lecturer in Physiology at the London Hospital. With Contributions by various writers. xii. + 740 pages. Demy 8vo. 12s. net. London: Edward Arnold, 41 and 43, Maddox-street, W.

BY C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S., Senior Surgeon and Lecturer on Surgery at the London Hospital; Examiner in Surgery at the University of Cambridge; late Examiner in Surgery at the University of Oxford.
ENLARGEMENT of the PROSTATE. Third Edition. Price 6s.
INFLAMMATION of the BLADDER and URINARY FEVER. Price 5s.
London: H. K. Lewis, 136, Gower street.
WHEN to OPERATE in INFLAMMATION of the APPENDIX. Second Edition. Price 2s. 6d.
THE SURGICAL TREATMENT of GASTRIC ULCER. Price 2s. 6d.
London: J. Bale & Danielsson, Ltd., 83-89, Gt. Titchfield-street.

New and Revised Edition.

FOOD and the PRINCIPLES of DIETETICS. By ROBERT HUTCHISON, M.D. Edin., F.R.C.P., Assistant Physician to the London Hospital. xx. + 582 pages. Illustrated. Demy 8vo. 16s. net. ** The chapters on Food in Disease have been greatly extended in this edition and the latest patent foods are described. London: Edward Arnold, 41 and 43, Maddox-street, W.

THE RATIONAL TREATMENT of RUNNING EARS. By F. FAULDER WHITE, F.R.C.S., Hon. Surgeon and Aural Surgeon to the Coventry Hospital.
Some opinions of leading medical men:—
"Excellently practical." "A considerable addition to our knowledge." "I quite agree, too much heroic drilling and gouging." "Interests me greatly." "Indicates that your views and treatment have done much good." 5s.
Iliffe & Sons, 20, Tudor-street, London.

Now Ready. Third Edition, Revised and Enlarged. Crown 8vo, cloth. Price 6s. net, by post 6s. 4d.

THE RECOVERY of HEALTH. With a Chapter on the Salisbury Treatment and Recipes. By ARCHIBALD KEIGHTLEY, M.D. Cantab. With Illustrations. London: Henry J. Glaisher, 57, Wigmore-street, W.

HOBLYN'S DICTIONARY of MEDICAL TERMS. A Reference Handbook for Physicians, Surgeons, Nurses, &c. Price 10s. 6d. Whittaker & Co., 2, White Hart-street, London, E.C.

PRIVATE TUITION for the BLIND. Mr. J. H. WARMINGTON, M.A. (blind), Graduate of Cambridge University in mathematical honours, is prepared to receive BLIND BOYS as private pupils, and trains them for the University or any other walk in life.—Apply Mayfield, Downing-grove, Cambridge.

SERUM-BOTTLING APPARATUS. MAYNARD'S PATENT. Please address inquiries to No. 184, THE LANCET Office, 423, Strand, W.C.

INTERNATIONAL MEDICAL CONGRESS AT LISBON.

APRIL 19TH TO 26TH, 1906.

SPECIALLY REDUCED 1st CLASS FARES

LONDON to LISBON.

SINGLE, **£5 . 5 . 0.** RETURN, **£8 . 8 . 0.**

Full Particulars from—

JOHN HALL Junr. & Co., 31 & 32, Crutched Friars, LONDON, E.C.

SILVER MEDAL, Paris Universal Exhibition, 1900.
GOLD MEDAL, Saint Louis, U.S.A., International Exhibition, 1904.

NEUROSINE PRUNIER

—Chemically Pure Glycerophosphate of Calcium—

A General Reconstituent of the Nervous System

(Neurasthenia, Phosphaturia, Rachititis, General Debility, Overwork).

NEUROSINE PRUNIER is prepared in three pharmaceutical forms—

1. NEUROSINE PRUNIER Granulated. 2. NEUROSINE PRUNIER Syrup.
3. NEUROSINE PRUNIER Cachets.

Each tablespoonful of Granulated or Syrup, and each Cachet, contains 4½ grains of pure Glycerophosphate of Calcium.

CHASSAING & CIE., 6, Avenue Victoria, Paris.

Samples of NEUROSINE PRUNIER will be sent gratis and post free to members of the Medical Profession on application to the General Depot for the United Kingdom,

F. H. MERTENS, 64, Holborn Viaduct, London.

A NEW DEPARTURE

from the ordinary Coal Tar Soaps has just been brought before the notice of the Medical Profession in the shape of ANTHRASOL SOAPS. These are treble-milled Toilet Soaps with which have been incorporated ANTHRASOL (Knoll), a colourless Tar possessing far greater penetrating powers than the ordinary black tar, and it does not stain either the skin or the linen.

These Soaps are made in Great Britain solely by

EDWARD COOK & CO., Ltd., The Soap Specialists, LONDON, E.

and Samples are sent free to Medical Men upon application.

The Milroy Lectures

ON

EPIDEMIC DISEASE IN ENGLAND—THE EVIDENCE OF VARIABILITY AND OF PERSISTENCY OF TYPE.

Delivered before the Royal College of Physicians of London,

BY W. H. HAMER, M.A., M.D. CANTAB., F.R.C.P. LOND.

LECTURE I.[1]

Delivered on March 1st.

MR. PRESIDENT AND GENTLEMEN,—Changes of type in epidemic diseases was the subject chosen by Dr. B. A Whitelegge for the Milroy lectures of 1893, to which the reader perforce returns again and again, as if increase of appetite had grown by what it fed on. The same topic has been variously approached and in recent years more particularly from the evolutionary standpoint. Already towards the close of the seventeenth century Sydenham had been accorded a Pisgah sight of the land to be explored, but prior to the Registrar-General and to Darwin no considerable advance into this new territory was possible. Even in the "fifties" there was much speculation which now seems strangely out of date. Murchison contended, on the one hand, for the *de novo* origin of typhoid fever and he notes, "No mention is made of specific disease in the Mosaic account of the Creation, when we are told that every living creature and herb of the field was created and it would be absurd to imagine that all of them have sprung from Adam." On the other hand, he observes that "although typhus varies in its severity and duration at different times and under different circumstances, there is no evidence of any change in type or essential characters. The typhus of modern times is the same as that described by Frascatorius and Cardanus." The pages of the *Edinburgh Medical Journal*, 1856–58, contain a discussion on the transition from the "sthenic or phlogistic character" of continued fever in an earlier 12 years to the "asthenic or adynamic character in the 12 years which had then just elapsed." Blood-letting, formerly widely practised, had been practically abandoned as a method of cure for fevers. The supposed change of type, Murchison argued, was really a change from one kind of fever, relapsing fever, to another kind of fever, typhus; this and not the practice of blood-letting explained the lower mortality in the earlier period, the diversity "resided in the mental revolutions of practitioners rather than in the actual revolutions of disease." Murchison might have quoted the passage cited by Dr. Milroy *apropos* of errors of nomenclature from John Locke: "Were the imperfections of language as the instrument of knowledge more thoroughly weighed, a great many of the controversies that make such a noise in the world would of themselves cease and the way to knowledge and to peace too lie a great deal opener than it does"; while to the same effect Bacon has remarked: "Although we think we govern our words yet certain it is that words as a Tartar's bow do shoot back upon the understanding of the wisest, and mightily entangle and pervert the judgment."

The Registration Act of 1837, as has often been observed, marks a new departure. Dr. Farr commented upon the notable advance made when statistical records were first applied to the study of epeidmic disease. The Registrar-General calculates rates to two places of decimals, but there is still no precise agreement as to the nature of the units dealt with. Is "typhus," for example, the disease of 1847 or that which smouldered in Bermondsey in 1903? Scarlet fever is said to prevail nowadays in an attenuated form, but there is no scale by which to gauge it. The child reaches a stage in his mental development when he begins to wonder why he has been content to accept some concrete piece of string or chalk as a test object to be referred to in discussing questions of length or size. The units referred to by the epidemiologist are unfortunately still of this primitive character; there is no standard case of typhus fever deposited at Kew and no one proposes to test strains of small-pox by their ability to kill unvaccinated vagrants of given weights in specified times.

Murchison has remarked that "in distinguishing the different forms of continued fever too much reliance has been placed on their symptoms and pathology, while there has been a want of sufficient investigation of their causes." With elaboration of the germ theory the pendulum has swung to the other extreme and it is now quite orthodox doctrine to hold that the presence of a particular germ spells specific disease; indeed, it may be questioned whether some modern bacteriologists, in the light of the demonstration of diphtheria, cholera, and enteric fever bacilli in persons presenting no symptoms of illness, would not feel that Murchison much exaggerated the difficulties inherent in a hypothesis requiring the co-existence of all pathogenic organisms in one individual. "The germ," Sir William Collins says, "has perhaps been too much with us, and the paramount importance of soil has been absurdly underrated." Or, to quote Dr. G. Newman, "The early school of preventive medicine declared for the health of the individual and laid the emphasis upon predisposition; the modern school have declared for the infecting agent and have laid emphasis upon the bacillus. The truth is to be found in a right perception of the action and interaction of the tissues and the bacillus." Or as Dr. F. G. Clemow expresses it, "Though constantly spoken of as if it were a material tangible entity disease is, in fact, no such thing. It is only a morbid phenomenon, or rather a group of morbid processes, in the tissues of a particular animal organism. In the language of logic it is not even a phenomenon but an epiphenomenon."

Here is a fertile source of difficulty and misapprehension. It has been suggested that rhythmical evolutionary changes in the life-history of micro-organisms may prove explanatory of waves of disease, but is the rhythm manifested in the micro-organism or in that epiphenomenon the interaction between germ and tissues? If the latter we dispose at once of a difficulty. The fossils in the strata do not recur cyclically; a species once extinguished never reappears. Is this true also in the case of disease organisms or must these "lowly organisms, on the borderland of the animal and vegetable kingdoms, on the threshold, as it were, of the organic and inorganic, ... whose cycle may be less than an hour and whose rate of propagation is incalculable" (Collins) be regarded as exceptional? Sir George Darwin has discussed "the extent to which ideas parallel to those which have done so much towards elucidating the problems of life hold good also in the world of matter." He regards the several chemical elements as "different kinds of communities of corpuscles which have proved by their stability to be successful in the struggle for life." Again he says: "An atom continuously radiates and loses energy and must ultimately run down as a clock does; its decay may be very slow, it may run for 1,000,000 years but it cannot be eternal." From this new point of view the older ideas concerning evolution come under criticism.[2]

It might be thought that study of the records of disease would throw light upon change of type; indeed, Sydenham hints as much but expresses the view that the materials which could be collected in a single lifetime would not be abundant enough for the purpose. Again, Hecker points out that "such an insight into disease as is worthy of the dignity of a science cannot be obtained by observation of isolated epidemics, because Nature never in any one of them displays herself in all her bearings nor brings into action at one time more than a few of the laws of general disease. One generation, however rich it may be in stores of important knowledge, is never adequate to establish, on the

[1] Lectures II. and III. will be delivered on March 6th and 8th respectively.

[2] Thus Sir George Darwin expresses a doubt "whether biologists have been correct in looking for continuous transformation of species." "Judging by analogy we should rather expect to find slight continuous changes occurring during a long period of time followed by a somewhat sudden transformation into a new species or by rapid extinction," and he proceeds to refer to "Theories of physical evolution which involve the discovery of modes of motion or configurations of matter which are capable of persistence. The physicist describes such types as stable; the biologist calls them species." Again Weismann writes, "the idea of species is fully justified in a certain sense; we find, indeed, at certain times a breaking up of the fixed specific type, the species becomes variable, but soon the medley of forms clears up again and a new constant form arises—a new species which remains the same for a long series of generations until ultimately it too begins to waver and is transformed once more." Bastian finds in the persistence of low types of life evidence of the "continual surging up through all geologic time of freshly evolved forms."

foundation of actually observed phenomena, a doctrine of disease worthy of the name."

In the first instance, it is necessary to lay down a *scale* indicating the rate at which forms of life may be presumed to vary. On the one hand, then, is evidence of extraordinary persistency of type. "What is more certain," says Weismann, "than that the animals and plants around us remain the same as long as we can observe them, not through the lifetime of an individual only, but through centuries, and in the case of many species for several thousand years. Certain genera of echinoderms such as starfish (Astropecten) lived in the Silurian times and they are represented nowadays in our seas by a number of species; and in the same way the cephalopod genus Nautilus has maintained itself among the living all through the enormous period from the Silurian sea to our own day. Similarly the genus Lingula of the nearly extinct class of brachiopods has been preserved from the grey dawn of primitive times, with its records in the oldest deposits, and is represented in the living world of to-day by the so-called 'barnacle goose' mussel, Lingula anatina."

Huxley was fond of insisting upon the existence of what he called "persistent" types, and as long ago as 1862 he argued in a strain which shows that some of the doctrines enunciated by Sir George Darwin and Weismann were already accepted by this early champion of the evolution theory. He says that study of the positive facts of palæontology impresses us not with the greatness of the changes which are exhibited to view, but with the "smallness of the total change." Thus "there are 200 known orders of plants; of these not one is certainly known to exist exclusively in the fossil state. The whole lapse of geological time has as yet yielded not a single new ordinal type of vegetable structure." The change in the animal world though greater is still singularly small. "No fossil animal is so distinct from those now living as to require to be arranged even in a separate class from those which contain existing forms. It is only when we come to the orders, which may be roughly estimated at about 130, that we meet with fossil animals so distinct from those now living as to require orders for themselves and these do not amount on the most liberal estimate to more than about 10 per cent of the whole." Again, he refers to a lecture "On the Persistent Types of Animal Life" delivered in 1859, in which it was stated that "there are carboniferous plants which appear to be generically identical with some now living; that the cone of the oolitic Araucaria is hardly distinguishable from that of an existing species; that a true Pinus appears in the Purbecks and a Juglans in the chalk; while from the Bagshot sands a Banksia, the wood of which is not distinguishable from that of species now living in Australia, had been obtained."

But, on the other hand, there may be rapid transformation under conditions favourable to change; and here the phenomena of variation under domestication and the behaviour of species under conditions of isolation must more particularly be referred to. Darwin made his careful study of domesticated animals and of cultivated plants because he considered it to "afford the best chance of making out" the "obscure problem." He traced the 150 and more sub-breeds of dog to some seven or eight extinct canine species. He writes: "Compare the racehorse, drayhorse, and a Shetland pony in size, configuration, and disposition, we see greater differences than exist between the seven or eight other living species of the genus Equus." Upon the case of the pigeon he especially laid stress, tracing all the varieties of domestic pigeon, which he classed in four groups including some 150 kinds, to one source, the rock pigeon, Columba livia; yet he says "several of the most strongly characterised domestic forms if found wild would have been placed in at least five new genera. ..... Anyone now visiting a well-stocked English aviary would certainly pick out the jacobin, turbit, pouter, &c., as distinct kinds. If the same person could have viewed the pigeons kept, before 1600, by Akbar Khan in India and by Aldrovandi in Europe, he would have seen the jacobin with a less perfect hood; the turbit apparently without its frill; the pouter with shorter legs and in every way less remarkable—that is, if Aldrovandi's pouter resembled the old German kind; the fantail would have been far less singular in appearance, and would have had much fewer feathers in its tail; he would have seen excellent flying tumblers, but he would in vain have looked for the marvellous short-faced breed; he would have seen birds allied to barbs; and, lastly, he would have found carriers with beaks and wattle incomparably less developed than in our English carriers." Specially noteworthy in connexion with variation in the pigeon is the dictum of Sir John Sebright, quoted by Darwin, to the effect that "he would produce any given feather in three years, but it would take him six to obtain head and beak."

Turning now to the phenomena exhibited under conditions of isolation, there is particularly striking evidence of the fact that, as Weismann puts it, "the conditions of life are, so to speak, the mould into which natural selection is ever pouring the species anew." Insular regions harbour "so-called endemic species, that is to say, species which occur nowhere else upon the earth," and they are the more numerous the further the island is removed from the nearest area of related species. Thus the Sandwich Islands, which originated as volcanoes in the midst of the Pacific Ocean more than 4000 kilometres from the continent of America, possess "18 endemic land birds and no fewer than 400 endemic terrestrial snails." The Galapagos Islands, 1000 kilometres from the coast of South America, yield "21 endemic species of land birds ..... (including) about a dozen different but nearly related mocking birds, each of which is found in only one or two of the 15 islands." The endemic birds in such island groups differ solely or mainly in their colouring and the differences are, generally speaking, specially marked in the males. This is also the case in the humming birds, about 150 species of which occur in the tropics of the New World, species having often "quite a small area of distribution, many are restricted to a single volcanic mountain living in the forests which clothe its sides ..... presumably because they cannot endure the climate of plains."

It is quite clear that in instituting comparisons between the behaviour of diseases and the more or less gradual evolution of specific types in animals and plants, due regard must be paid to various considerations. The organisms associated with disease are simple and lowly organisms; their transmutations may be more rapid than those of more complicated forms. According to Sir George Darwin, "the time needed for a change of type in atoms and molecules may be measured by millionths of a second, while in the history of the stars continuous changes occupy millions of years. Notwithstanding this gigantic contrast in speed yet the process involved seems to be essentially the same." Weismann says, "In a certain sense we may say that simpler, more lowly organisms are more capable of adaptation than those which are highly differentiated and adapted to specialised conditions in all parts of their bodies, since from the former much that is new may arise in the course of time, while very little and nothing very novel can spring from the latter." On the other hand, it has been pointed out by Darwin that "a very simple form fitted for very simple conditions of life might remain for indefinite ages unaltered or unimproved; for," he says, "what would it profit an infusorial animalcule, for instance, or an intestinal worm to become highly organised?"

It may be noted further that very little is known concerning the reproduction of disease organisms, and the question of the occurrence or non-occurrence of amphimixis may be of importance. There is no sexual reproduction so far as is at present known in schizomycetes and saccharomycetes, though it has again and again been surmised that the bacteria may be but phases in the life-history of higher forms; in the protozoa sexual reproduction occurs. Weismann refers to algæ of the genus Laminaria which is said to multiply only through asexual swarm spores, and he says "there seems nothing against the assumption that these tangles have existed for a long time under uniform conditions and have become adapted to them with a high degree of constancy." Again, he refers to the lichens, which represent a life partnership between fungi and algæ, and in which amphimixis appears not to occur at all. These algæ can also live independently, and the same species of alga may combine with several different fungi to form different species of lichen, just as the same fungus may also form part of several species of lichen. He concludes that "lichens formerly possessed a sexual reproduction, but that they have lost it, though whether all have done so is perhaps not yet quite certain. The same assumption," he continues, "must be made in regard to the basidiomycetes among the fungi, and for most of the ascomycetes, for in these groups of fungi sexual reproduction has only been demonstrated with certainty in a few genera. Whether," he adds, "it may be assumed that the fungi which are now asexual are no longer capable of new adaptations, and whether their parasitic habit may be regarded as making up in some way for the lack of the remingling of the germ-plasm, as the botanist Möbius supposes, I am not able to decide. It is obvious that data in regard to amphimixis

among the fungi are still incomplete, and recent investigations lead us to suspect that sexual mingling may not be absent but only disguised." At the present time, then, nothing certain can be said as to the influence exerted by amphimixis, though the suggestion of Möbius raises the question whether we may not be concerned not merely with the evolution of one species but with the interaction between species and species. The fact that disease is an epiphenomenon again confronts us.

On a review, then, of the changes of type exhibited by the higher forms of life marked contrasts are presented—on the one hand extreme stability, as in Lingula; on the other, variability, as in the pigeon or the humming bird. But even in higher forms—and the difficulty is far more serious in dealing with bacteria—how much depends upon the characters held to determine specific differences. The shepherd distinguishes one sheep from another; Darwin quotes Mr. Dixon as affirming that "to every hen belongs an individual peculiarity in the form, colour, and size of her egg, which never changes during her lifetime, so long as she remains in health, and which is as well known to those who are in the habit of taking her produce as the handwriting of their nearest acquaintance." It is but a step to the modifications in plumage which in the humming-bird connote specific differences, and, as we have seen, varieties of domesticated pigeon stand as far apart one from another as do actual genera of Columbidæ living under natural conditions. Enough has been said to show how great are the difficulties which hedge about any attempt to estimate, *a priori*, the rate at which the evolution of disease germs proceeds.

It would appear at first sight, perhaps, in turning to epidemiological records for information as regards persistency or variability of type that we were engaging in a hopeless quest. Darwin wrote: "I look at the natural geological record as a history of the world imperfectly kept and written in a changing dialect; of this history we possess the last volume alone relating only to two or three countries. Of this volume only here and there a short chapter has been preserved, and of each page only here and there a few lines." But the difficulties of the geological records are as nothing compared with those which now confront us, for an epidemic disease leaves "no bones behind it in the strata."

On passing backwards two-thirds of a century the loss of statistical records for the whole country is an almost overwhelming one; the London bills of mortality still stretch away for a brief space into the early part of the seventeenth century, telling of small-pox, measles, whooping-cough, in a very unsatisfying manner of the group of fevers, and in the earlier years of plague. In the pages of Huxham, Fothergill, Bard, and others the behaviour of throat malady is more or less imperfectly traceable as far as the early part of the eighteenth century. There are the materials for carrying the history of influenza at least a hundred years further still. But as we proceed backward difficulties augment, charts fail, the lights are only dimly discernible, though that of Sydenham shines far away in the seventeenth century; plague is still there, stretches back, indeed, from 1666 to the middle of the fourteenth century and maybe beyond; mysterious shapes, the "sweating sicknesses" of the late fifteenth and early sixteenth centuries, and shortly prior to that time the "garrotillo" of Spain loom out of darkness; there is the strange epidemic extension of lues venerea and earlier still the ergotism of the rye-eating populations of the continent, the "leprosy" of the Middle Ages, stray allusions to deadly outbreaks within the walls of monasteries, and then still earlier the famines and murrains which are all that remain until we ultimately reach "Beda's plague" in the seventh century of our era. Thus rapidly we pass to the "primordial field of physical evil" of which Sir John Simon has spoken in the opening paragraphs of his "English Sanitary Institutions."

In looking for enlightenment upon the question of change of type a mass of material presents itself for study. Sir James Paget raised doubt as to whether any result of value would accrue from pursuing the historical method; Hecker is more sanguine. "The diseases of nations," says he, "constitute an immeasurable and unexplored country. Small is the number of those who have traversed it; often have they arrested their steps filled with admiration at striking phenomena; have beheld inexhaustible mines waiting only for the hand of the labourer and from contemplating the phenomena of collective organic life, which science nowhere else displays to them on so magnificent a scale, have experienced the sacred joy of the naturalist to whom a higher source of knowledge has been opened."

Little can be made of the early pestilences, murrains, and famines. In this country especially famine seems to have continually recurred; indeed, there is an old saying particularly identifying England with famine, and at the same time ascribing St. Anthony's fire to France and leprosy to Normandy. The mediæval "leprosy," again, is a veritable will-o'-the wisp. Creighton considers in some detail the extraordinary confusion of ideas introduced by religious sentiment into conceptions concerning the leper and the lazar house, and ultimately arrives at the conclusion that in mediæval England the village leper was about as common as the village fool.

The epidemic disease which first appears in unmistakeable guise upon the stage of English history is plague. The Black Death was described by Guido de Cauliaco as presenting at Avignon two different fashions, one attended with "spitting of blood" and the other with "boils and sloughs in the external parts." Hirsch propounded the doctrine that the Black Death came from India, inasmuch as it conformed to what he called the "Indian type," being frequently complicated with bleeding from the lungs. Later experience does not support a thesis of the existence of distinct Levantine and Indian types of plague, and pneumonic plague appears to be much more widely distributed than it was formerly supposed to be. Mr. E. H. Hankin[3] contends, however, that there are certain resemblances between the Black Death and all the known plagues of Western India and he suggests that they had a common origin and that Gahrwali fakirs journeying to a religious festival, held at 12 yearly intervals at Nassik, were the infecting agents. Did time permit it would be interesting to pursue this question of differing types of plague, and further to follow the settling down of plague in the English towns, and to refer to the great exacerbations of plague from time to time in the fifteenth and sixteenth centuries; to the repeated mention made of coincident infection of animals; to the explosions of the seventeenth century and to Creighton's assignation of the altered behaviour of the disease to changing practices in relation to burial; to the great plague of 1665–66; and then, finally, to the disappearance of the disease from England and (save for a localised prevalence at Marseilles in 1720) from Europe until our own day. It must suffice, however, to point out that on a comprehensive survey of the records of the disease in the light of existing knowledge, it is apparent there is justification for holding, with Murchison, that diversity has resided in the revolutions of practitioners rather than in the actual revolutions of disease. It may be difficult to explain the prominence given to carbuncles and "tokens" in one age or to hæmorrhage from the lungs in another; but the evidence demonstrates the operation century after century of a disease entity which has presented a strange capacity for calling forth, at long distant periods and in remote climes, descriptions bearing a striking resemblance despite the diverse circumstances under which they have been written.

But passing from plague we are confronted with a most disturbing phenomenon from the point of view of those who seek to establish "a doctrine of popular diseases worthy of the name." The account generally given of the English sweat, *sudor Anglicus*, "that mist born spectre," as Hecker terms it, is that the disease suddenly appeared upon the stage of history in 1485, recurred in 1508, 1517, and 1528, and yet a fifth time in 1551, and then disappeared never to return. Creighton observes that "writers on the English sweat, hitherto, have had to depend on the somewhat meagre and not always consistent statements of annalists, for their knowledge of its first authenic occurrence"; he adds that he is able to adduce the evidence furnished by a manuscript written by a contemporary physician. Even with this additional source of information available the records of the English sweat strikingly illustrate the fragmentary character of the materials from which history has to be built up and show how statements to which originally little or no value was presumably attached, by being copied by writer after writer, have gradually come to be invested with an appearance of authority. The only contemporary record (Polydore Virgil's account "was certainly not begun until after 1504 and was not published until 1531") which gives details of the first sweating sickness is, then, the MSS. of a

[3] Journal of Hygiene, January, 1905.

Dr. Thomas Forrestier, a native of Normandy, tarrying in London in 1485, and apparently encountering difficulties there two years later, when he was granted "pardon for all escapes and evasions out of the Tower of London and elsewhere, and remissions for forfeiture of all lands and goods." This authority describes the new disease as coming "with a grete swetying and stynkyng, with rednesse of the face and of all the body, and a contynual thurst, with a grete hete and headache, because of the fumes and venoms." He fixes the date of commencement of the outbreak in London as Sept. 19th, 1485.

Practically all that is known of the second, third, and fourth sweats in England comes originally from the annals of the historian and poet laureate Bernard André, from the history of the Italian scholar and "man of affairs" Polydore Virgil, and from an occasional chance reference in State papers, such, for example, as that furnished in an ambassadorial despatch when the Venetian envoy asks his Government, in 1517, to replace him, as he wishes to escape from "sedition, sweat, and plague."[4] The fifth sweat, in 1551, for the first time, says Creighton, "called forth two native writings, one for popular use in English, in 1552, and another in Latin in 1555, both by Dr. Kaye or Caius, physician to Henry VIII. and Edward VI." and for seven years president of this College. Apart from him there are references to the outbreak in the diaries of a London citizen, Machyn, and of Edward VI. The dearth of contemporary medical treatises on the English sweat is truly remarkable, and in particular the absolute silence of Linacre on the subject has been commented upon by Hecker among others.

The "Boke or Counseill against the disease commonly called the Sweate or Sweatyng Sicknesse," made by Jhon. Caius throws more light upon the state of medical learning of the time than upon the "Sweatyng Sicknesse." The author says the disease was named in other countries the English sweat because it "firste beganne in Englande," but he notes that "some conjecture that it or the like hath bene before seene among the Grekes in the siege of Troie, in th ęperor Octavius warres at Cantabria called now Biscaie, in Hispanie and in the Turkes at the Rhodes." In a later passage, in speaking of Troie, he mentions the fact that "dogges and mules were first attacked there, and after men in great numbre," but he does not specifically state that dogges and mules were attacked in 1551. He calls the disease Ephemera, having in his mind no doubt "the Ephemera that Galene writeth of," and he cites Galen as authority for his doctrine that "our bodies cahot suffer any thig or hurt by corrupt and infective causes, except ther be in thē a certie mater prepared apt and like to receive it, els, if one were sick al should be sick, if in this countrie in al coūtries, when the infection came, which thig we se doth not chāce."

Then follows an enunciation of the extraordinary doctrine that the disease attacked only English people. In "Cales, Antwerpe, and other places of Brabant only our countrimen ware sicke and none others except one or two others of thenglishe diete which is also to be noted." Apart from any other considerations the contemporary chroniclers themselves are by no means in agreement as to this supposed law; passing over the conjectures as to the outbreak at Troy, in 1517 Ammonius of Lucca, a scholar of some celebrity, was cut off in the flower of his age, the Venetian Ambassador suffered at least from apprehensions, and in 1529 the English sweat admittedly spread far and wide on the Continent. The notion that particular nationalities, &c., were immune, or the reverse, may be compared with that entertained at Lubeck in 1529, when the English sweating fever was held to be "a punishment which heaven inflicted on the Martineans, for so they called the followers of Luther, and the people were not undeceived until they saw with astonishment that Catholics also fell sick and died" (Hecker). Kaye says: "The fifth Ephemera of Englande began at Shrewsbury" and, as Creighton notes, Hecker has been led to construct a picture of the disastrous progress of the disease "along the valley of the Severn" prior to its proceeding to London. Meagre as are the other contemporary sources of information this precise geographical location of the outbreak must unquestionably be challenged. Thus Creighton cites the parish register of Loughborough, June, 1551, where an entry appears concerning "the swet called new acquaintance, alias stoupe knave and know thy master"; and again, from Dorset, a reference to "the posting sweat, that posted from town to town thorow England and was named 'stop gallant' for it spared none"; and one to "the hote sickness or stop gallant," from Devonshire; one to a great plague at York; and one to two deaths in Huntingdonshire. Caius says the east and north were attacked and no doubt Creighton's statement that it was "diffused all over England in the manner of influenza" may be accepted. The fourth sweat (1528) is said to have invaded the continent in 1529, avoiding France, not entering Spain, and not crossing the Alps, but extending over the rest of Europe "in much the same way," says Creighton, "as if it had been an influenza reversing the order of its usual direction." In Germany several pamphlets on the new malady appeared, of which Hecker gives account.[5]

Enough has been said to show how far we are from possessing a satisfactory description by contemporary writers of the supposed new disease; indeed, so far as the four earlier outbreaks are concerned the particulars to hand in this country may be compared with the sort of information it might be possible to glean concerning the influenza of 1803 from fragments of the correspondence of the Poet Laureate and the Italian Ambassador of the time. Much is capable of explanation if once it is decided not to treat the contemporary records more seriously than they deserve. Is it not mysterious that when, ceasing to be peculiarly English, the sweat overran the continent it did not affect France; while the year 1551, that of the last sweat, "curiously coincided," says Creighton, "with influenza (coqueluche) in France." Strangest of all, "during the prevalence of influenza in Britain, in 1510, Spain was afflicted with sweating sickness" (Villalba). The accepted account of five clean-cut English epidemics is almost certainly misleading. The Graf von Newenar, Provost of Cologne, maintained, indeed, that sweat broke out in England every year, but this Hecker considers "unworthy of credence." In 1511 (not a "sweat" year) Erasmus complains of his health being rather doubtful "from that sweat" (a sudore illo). This may, as Creighton says, "possibly refer to the lingering effects of an attack in 1508 or to the influenza of 1510." Again, there were "hot agues" in England in 1518 and 1540. The conditions, so far as importation of infection is concerned, were very different in the sixteenth from those in the nineteenth century, a point to which I propose to revert later, but it is conceivable that in some such way as the influenzas of 1803, 1833, 1837, 1847-48, and 1890 stand out in the history of the nineteenth century, so the five sweats of the fifteenth and sixteenth centuries may merely represent marked exacerbations of a more or less established disease.

May we not go a step further and question Polydore Virgil's dictum, "man of affairs" though he was, that the sweat was "a new kind of disease from which no former age had suffered, as all agree." Influenza in later times was over and over again the "new disease" or the "new acquaintance"; and certain it is that, as a literature of sweating sickness gradually emerges to view, it and influenza are inextricably confused. The clinical pictures of the two maladies do not exhibit marked differences and we shall see immediately that outbreaks, variously designated but presenting clinically broad general resemblances, prevailed contemporaneously with the "English sweat" and with the strangely localised sixteenth century "influenzas." From an epidemiological point of view the diseases are very hard to distinguish.

I have dissected out the "Chronological Survey," prepared by Hecker, using his words and adding certain supplementary observations, for the most part derived from the text of his book on "Epidemics in the Middle Ages" (*vide* Table). The table thus prepared strikingly illustrates the

[4] Creighton notes that in the "History of Cork," by C. Smith, M.D., there is an entry, under 1528, concerning "a malignant disorder called the Sweating Sickness in Cork," and adds, "It has been generally supposed that the sweat did not enter Ireland or Scotland in any of its five outbreaks." Du Bellay, the French Ambassador, refers occasionally to the sweat in 1528; Henry VIII. discusses the subject with Anne Boleyn, and he advises Wolsey to use the pills of Rhazes once a week, and flies himself from place to place until he reaches Tyttenhanger where he elects to "take his chance of the sweat, keeping up immense fires to destroy the infection."

[5] They show, as Creighton observes, "an enormous range" of fatality and furnish interesting particulars as to therapeutical methods. Thus the patients were placed, "whether they had the sweating sickness or not (for who had calmness enough to distinguish it), instantly to bed," covered with clothes, windows being closed until the patient, as the old writer says, "finally in this rehearsal of hell being bathed in an agonising sweat gave up the ghost." Another writer complains of "ignorant interlopers who with their pills and their hellish electuaries flit about from place to place, especially where rich merchants were to be found, from whom, should they be restored, they obtain the promise of mines of gold."

TABLE SHOWING ABSTRACTS FROM HECKER'S CHRONOLOGICAL SURVEY.

Year.	References made to the English sweating sickness.	References made to diseases occurring abroad possibly of a similar nature.	References to other diseases occurring abroad and further references by Hecker and others.
1481	—	Encephalitis in Germany; the so-called "Hauptkrankheit" prevailed in Westphalia, Hesse, and Friesland.	—
1482	—	Febrile cerebritis in France and epidemic pleuritis in Italy.	The febrile cerebritis was an inflammatory fever with delirium and intense headache.
1485	In the beginning of August: Eruption of the English sweating sickness among Richmond's mercenary troops. It spread from east to west and then in a contrary direction. The end of August in Oxford, Sept. 21st till the early part of October in London. The middle of November in Croyland. 1486, Jan. 1st, termination of the first epidemic of sweating sickness.	Malignant fever in Germany and Switzerland; it was, perhaps, says Hecker, identical with the fever which at the same period desolated the north-west of Germany as far as the shores of the North Sea.	Plague in Italy. The nations at this time were everywhere threatened with death and destruction.
1506	The summer: the sweating sickness broke out in London and continued to a moderate extent, being confined to England until the autumn. This second visitation was the mildest of all and the old English method of treatment proved effectual everywhere.	Encephalitis, putrid fever, and malignant pneumonia in Germany. A fever distinguished by headache and phrenzy similar to that which had appeared in France in 1482. Plague in Spain; plague in Portugal.	Hecker writes: "A very fatal disease broke out in Lisbon, the further progress of which was marked by the terror, the flight, and the confusion of the inhabitants. Of what kind it was or what connexion it had with the pestilence in Spain which had just preceded it, it would perhaps be difficult now to ascertain." Pestilential epidemics in Spain. Similar notices are met with of pestilences occurring in that country in 1506, the year of the English sweating sickness, in 1507 and 1508, and, finally, in 1510, the year of the great influenza, and 1515.
1510	—	**GREAT INFLUENZA** (Coqueluche) throughout France and probably to a still further extent. **During the prevalence of influenza in Britain Spain was afflicted with sweating sickness.** Plague was in the north of Europe.	Pestilential epidemics in Spain.
1517	In July outbreak in London of the third visitation of epidemic sweating sickness; it spreads with great malignity over all England and among the English at Calais; in the sixth week it attains its greatest violence and terminates in December. Ammonius of Lucca and many distinguished and learned persons at Oxford and Cambridge were carried off by it. In December immediately after the sweating sickness a plague occurred in England and lasted all the winter.	In the early months epidemic tracheitis and œsophagitis (diphtheritis) in Holland lasting only eleven days. This epidemic extends towards the south and appears in the same summer at Basle. Encephalitis ("Hauptkrankheit") and other inflammatory fevers in Germany. [But for the journal of the worthy Tycngius no distinct record would have existed of this remarkable epidemic.]	Erasmus writes, June 1st, 1518, "concerning a new plague raging in Germany." Hecker says we are fully justified in classing the epidemic in 1517 with the influenzas and in declaring the morbid commotion which thus manifested itself to have been a forerunner of the English pestilence. Again, he says, the facts prove "that the English sweating sickness of 1517 made its appearance not alone but surrounded by a whole group of epidemics."
1528	At the end of May: outbreak in London of the fourth epidemic sweating sickness; it spreads with great malignity and with much disturbance of social life all over England, carries off many distinguished persons, and terminates in the winter. This year it remains confined to England and does not return in the following year.	The trousse galant carries off a fourth part of the inhabitants of France in this and the following years. 1529, July 25th: Outbreak of the epidemic sweating sickness in Hamburg. On July 29th in Lubeck. On August 14th in Zwickau. On August 31st in Stettin. On Sept. 1st in Dantzig. On August 24th in Strasburg. On Sept. 5th, 6th, and 7th in Cologne, Augsburg, and Frankfort-on-Maine. About Sept. 20th in Vienna and among the besieging Turks. On Sept. 27th in Amsterdam, in Antwerp, and the rest of the Netherlands, simultaneously at the end of September in Denmark, Norway, and Sweden.	There was a "malignant disease called the sweating sickness" in Cork, 1528 (Smith's "History of Cork," 1774).
1545	—	—	Trousse galant in France, from which 10,000 English died at Boulogne.
1551	On April 15th: outbreak of the fifth epidemic sweating fever in Shrewsbury on the Severn; it gradually spread with stinking mists all over England and on July 9th reached London. The mortality was very considerable. Foreigners were unaffected but Englishmen in foreign countries sickened with the English sweating sickness. The epidemic terminated on Sept. 30th.	Malignant fever in Swabia. Plague in Spain. Malignant fever in Germany and Switzerland. **INFLUENZA.**	Brassavolus said the sweat was vexing Flanders in 1551. Creighton conjectures typhus or influenza may have been in question. Hecker says: "The fifth epidemic sweating sickness appeared accompanied by a group of various epidemic diseases which might be considered as resulting from general influences."

way in which, during the close of the fifteenth and the first half of the sixteenth centuries, England, France, Germany, Italy, Portugal, Spain, Holland, &c., are now involved in widespread prevalences of epidemic disease, now escape. It will be seen that the first sweat was preceded by "hauptkrankheit" in Westphalia, Hesse, and Friesland, "epidemic pleuritis" in Italy, and "febrile cerebritis" in France, and was contemporaneous with "malignant fever" in Germany and "plague" in Italy. The descriptions to hand relating to "hauptkrankheit," epidemic pleuritis, and febrile cerebritis may profitably be compared with what we know concerning the English sweat and influenza respectively. The fever, frenzy, and headache of "hauptkrankheit" (or encephalitis), and the "inflammatory fever with delirium and intense headache" of febrile cerebritis, might either of them be referred to English sweat or influenza, while "epidemic pleuritis" suggests the very designation which Sydenham applied to what we now know to have been influenza in 1675; and, be it noted, this is practically all that is recorded concerning the symptoms of "hauptkrankheit," epidemic pleuritis, and febrile cerebritis, which in their widespread prevalence, involving whole nations and sudden devastating character, it is hard to match save with one or two of our present-day diseases.

Together with the second sweat there appear similar outbreaks in France and Germany, and now it is on record that epidemics occurred also in Spain and at Lisbon, and indeed continued in the former country until they culminated in the influenza of 1510. During the prevalence of influenza in Britain Spain, as has been seen, was afflicted with "sweating sickness," so that there is now authority for believing that in Spain both sweating sickness and influenza

were raging at one and the same time. The third sweat admittedly prevailed in Calais and contemporaneously there was "hauptkrankheit" as before in Germany and a mysterious disease in Holland, a remarkable epidemic truly, "lasting only 11 days," much in the manner described by continental writers as characteristic of the fourth sweat when it invaded Germany in 1528.

And now the sixteenth century chroniclers go far towards betraying the secret by admitting the fourth sweat to be no longer peculiarly English; it has, indeed, extended its sphere of influence, but strangely enough maintains its reputation for exclusiveness by refusing to invade French territory. France, however, by way of compensation, has a "Trousse galant" or "stop gallant" (or to quote the other expressive sixteenth century phrase "Stop, knave, and know thy master") of its own, which, epidemiologically considered, is practically the sweating sickness under another title. It may be observed, too, that a sweat has reached Cork, possibly having travelled westwards from England on just this one occasion; the fact can scarcely excite surprise, for the fourth "English" sweat is admitted to have burst bounds eastward, again quite breaking all precedents, in passing over to Germany. The fifth sweat is accompanied as usual, by "various epidemic diseases ..... resulting from general influences"; and at last, as if to prove that "truth will out," by influenza itself; for the epidemic on the continent is classed as influenza by almost all the authorities, though according to Brassavolus the "sweat was vexing Flanders"; the Venetian envoy in London, however, calls the sweat there an "influsso," as if to make sure that there should be no mistake at all about it.[6]

"Hauptkrankheit," encephalitis, febrile cerebritis, plague, trousse galant, stop gallant, stop knave and know thy master, and sweat (English or other), known here in England now as "that sweat," now, it may be, as "hot ague," were prevailing during the fifteenth and sixteenth centuries in Europe; only particular outbreaks here and there have been singled out for mention by "poet laureates, court historians and men of affairs" in this country, by pamphleteers abroad; rarely enough, either here or there, is there any medical authority to consult. It is surely no easy task to draw the dividing line between the English and continental outbreaks or between the five recorded English sweats and later epidemics of like sort. In broad epidemiological characters the similarity is very precise—the "posting" from place to place, the "stop gallant" attack upon the young and robust and upon the well-to-do, the two or three to five or six weeks' epidemic course, and the low mortality. Even the clinical symptoms are in close agreement—headache, prostration, and fever, these at least we have as well as "sweat." Dr. Jones, who suffered from the sweat (influenza) of 1556 in England compared it with the "true sweat" of 1551. It was prophesied that in 1575 the sweat would return, and Thomas Cogan says there were in that year "many strange fevers and nervous sickness," so that the prophet "erred not much" (Creighton).[7] The influenza of 1580 in Europe had "so much of the sweating character that it was said the English sweat had come back," and we shall see presently how history will repeat itself so far as that matter is concerned. Creighton, in recording such particulars, says: "It would not be correct to say that these new fevers or influenzas, with more or less of the sweating type, were the sweat somewhat modified. But they seem to have come in succession to the sweat, if not to have taken its place or supplanted it." And what, it might be asked, is to be said of the trousse galants, "hauptkrankheits," and the rest, did the new fevers and influenzas succeed them? The historian of epidemics in this Tudor period, if he cling to the individuality of English sweat, cannot, indeed, refrain from holding that the similar forms of disease contemporaneously prevailing in the several continental countries were also each one of them individual and distinct; such a position is untenable. Creighton develops a "theory of the English sweat" which leads him to consider the connexion between sudor Anglicus and the Picardy sweat. To this question it will be necessary to return, but before doing so it will be well to refer to the history of influenza.

[6] See Creighton: History of Epidemics, Footnotes on pp. 261 and 264.

[7] There is, moreover, as Creighton notes, a reference to "sweat" in "Measure for Measure," Act I., Scene 2.

The Hunterian Lectures
ON
GASTRIC SURGERY.

Delivered before the Royal College of Surgeons of England on Feb. 19th, 21st, and 23rd, 1906,

BY HERBERT J. PATERSON, M.A., M.B., B.C. CANTAB., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR OF SURGERY AND PATHOLOGY IN THE COLLEGE; AND ASSISTANT SURGEON TO THE LONDON TEMPERANCE HOSPITAL.

LECTURE III.[1]

Delivered on Feb. 23rd.

THE COMPLICATIONS OF GASTRIC ULCER (*continued*).—PERFORATION.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—There is nothing more tragic in the field of human disease than death from sudden perforation of a gastric ulcer, tragic not only from its suddenness but from the fact that the victim is often a young person in the prime of life who to all outward appearance has been in the enjoyment of perfect health. The measure of success that has attended the efforts to snatch these victims from the very jaws of death must be accounted one of the greatest triumphs of surgery.

In the literature of the subject there is perhaps no more vivid picture of gastric perforation than the historical account of the case of Henrietta, Duchess of Orleans, which has been handed down to us by one of her maids-in-waiting. This interesting story as given by Dr. Samuel Gee[2] in his Bradshaw lecture for the year 1892 is as follows:—

> She had ailed for some time from pain in the stomach and side, but seemed to be otherwise in good health. One day after dinner she complained several times of pain; she drank some succory water as a stomachic, and putting the cup down with one hand, with the other she pressed her side, and said in a voice which betokened much suffering, "Ha, what a stitch in the side, what pain, I cannot bear it." Speaking these words, she flushed, and a moment afterwards turned pale, with a wan lividity which astonished everybody. She kept crying out and begged to be carried away, for she could not longer hold up. Supported by the arms of others she managed to walk, but with difficulty, and bent double. Put to bed she cried out more than ever that the pain in the pit of her stomach was past belief; she turned from side to side. A physician was fetched, who pronounced her complaint to be colic, and who prescribed suitable remedies. But the pain continued; she said that her suffering was greater than could be conceived and that she would die. All this occurred in less than half an hour. Whatever she swallowed made her retch; she brought up only a little mucus mixed with food. The efforts to vomit and the excessive pain threw her into a state of exhaustion which resembled repose, but she told the bystanders not to deceive themselves, that the pain was as great as ever and that she had no strength left to cry out. She heard someone remark that she was easier, and she said, "That is so far from being true, that were I not a Christian I would kill myself, so great are my sufferings. It is wrong to wish evil to anyone," she added, "yet I would that somebody could feel for a moment what I feel, so as to know what my pain is like." Her pulse became imperceptible, her limbs cold; her friends anxiously asked if nothing more could be done; they suggested a score of remedies, and at last her physicians in sheer desperation made an attempt to bleed her, but the blood would not flow. They gave her some broth, for she had taken no food since dinner. She no sooner swallowed it than her sufferings increased; she complained that her stomach was filling up. Death was painted on her face; the last struggle was short, and after two or three convulsive movements about her mouth, she died nine hours from the beginning of her illness.

The symptoms and diagnosis of perforated gastric ulcer I do not propose to discuss as they have been so fully dealt with by many writers but will confine my remarks to the surgical treatment of perforation and its results.

Mikulicz in 1880 was the first surgeon to advise and to carry out operative interference for gastric perforation, while Dobson[3] of Bristol was the first in our own country to realise the possibilities of surgical intervention. An interval of 12 years elapsed before the first successful case was reported by Kriege[4] in the year 1892. It is difficult to estimate the proportion of cases in which the patients recover after operation as so many of the successful ones are published while the failures are buried in oblivion. For

[1] Lectures I. and II. were published in THE LANCET of Feb. 24th, 1906, p. 491.

[2] THE LANCET, Nov. 5th, 1892, p. 1085.

[3] Bristol Medical and Surgical Journal, 1883, p. 196.

[4] Berliner Klinische Wochenschrift, December, 1892, p. 1230.

the purpose of the present lectures I have collected a series of 112 consecutive cases from the records of two London hospitals. Of these patients 58 died, a mortality of just under 52 per cent. Through the courtesy of the surgical registrars of 12 of the London hospitals I have been able to ascertain that during the year 1904 58 operations were performed for perforated gastric ulcer; of these cases 28 died, a mortality of 48 per cent.

Many writers have laid stress on the importance of early operation. The tables published by Weir and Foote[5] and Keen and Tinker[6] have been extensively quoted to show that the cases of early operation have a much higher percentage of recoveries than have those operated on later. Thus in Weir and Foote's series the mortality of those cases operated on within 12 hours is 39 per cent. and 76 per cent. in operations performed between 12 and 24 hours after perforation. In Keen and Tinker's table of 78 cases the mortality of the cases operated on within 12 hours is 19 per cent. and of those cases operated on within from 12 to 24 hours 50 per cent. Keen and Tinker also divide the cases in their table into two periods, those before the year 1896 and those after that year. In the first period the mortality of the cases operated on within 12 hours is 28·5 per cent., in the second period it is only 16·6 per cent. "This rapid fall," remarks Keen, "in the mortality of the cases operated on within the same interval after perforation shows that our technique and therefore our results are improving." These tables, however, do not really justify this sanguine conclusion, for they are not consecutive but isolated published cases, and therefore comprise an undue proportion of successes, for ont of the 78 cases 52—that is, 66 per cent.—of the patients recovered. In my series of consecutive cases the mortality, even of those operated on within 12 hours, is 47 per cent.; of the cases operated on within from 12 to 24 hours 50 per cent.; of the cases operated on within from 24 to 48 hours 83 per cent.; and of the cases operated on over 48 hours after perforation 50 per cent. So that in consecutive series of cases early operation does not seem to have quite the importance which Keen and Tinker's table appears to show. I am not, I need hardly say, suggesting that operation should be delayed. Undoubtedly the earlier operation is performed the better. The figures which I have given, however, show the untrustworthiness of statistics compiled from isolated cases, and also that other factors besides early operation may have an important bearing on the result, and of these probably the amount and nature of the extravasation, the presence of other ulcers, and the rapidity and completeness with which the operation is performed are the most important. To quote the words of Mr. A. Pearce Gould:[7] "Perhaps a little too much stress has been laid on the injunction to operate early and not enough on the more important dictum to operate well"; but while admitting this we must not lose sight of the axiom that perforated gastric ulcer is a catastrophe demanding early recognition and immediate operation.

The object of operation is twofold—the closure of the perforation and the cleansing of the peritoneal cavity. Fortunately, in the majority of cases the perforation is readily accessible; in only 12—that is, 10 per cent.—of the 112 cases in my series was the perforation situated on the posterior wall of the stomach. It is also interesting to note that in 70 per cent. of the male patients the perforation was in the pyloric third of the stomach, while it was in the cardiac third in 52 per cent. of the female patients.

Some authorities have recommended excision of the ulcer. Two reasons are advanced in favour of this proposal: first, that more healthy tissues are brought into apposition; and, secondly, that the ulcer is not left to cause subsequent trouble. As regards the first reason, excision possesses no advantage over simple suture, for by invaginating a sufficient area of the stomach wall around the perforation healthy tissues can be brought into apposition with equal efficiency and with greater simplicity than by excision, which certainly prolongs the operation and is probably attended with greater risk. Out of five cases of perforated gastric ulcer treated by excision and recorded by Mr. Sinclair White[8] two died from ulceration of the mucous membrane along the line of suture, leading in one case to hæmatemesis and in the other to leakage and suppuration. Similar cases have been recorded by other writers. As regards the second point, the prevention of subsequent relapse, it is doubtful whether excision secures the object in view. Mr. A. R. Anderson,[9] Mr. A. B. Mitchell,[10] and other surgeons have recorded cases in which excision has not secured immunity from further trouble.

In my opinion the performance of gastro-jejunostomy at the same time as suture of the ulcer is preferable to excision, it is more certain in its after results, and is probably not attended with greater immediate risk; indeed I hope to show later that it improves, not only the remote condition of the patient, but increases the immediate prospects of recovery. This procedure was carried out for the first time by Braun[11] in 1893 on a patient with a perforated gastric ulcer with such friability of the surrounding tissues that approximation of its edges was impossible. He closed the gap with an omental graft and performed anterior gastro-jejunostomy. The patient recovered and three and a half years later remained in good health.

In view of the suggested advisability of performing gastro-jejunostomy it becomes important to ascertain what proportion of the patients operated on for perforation subsequently suffer from gastric troubles. Numerous isolated instances of relapse have been recorded, among others, by Mr. W. Bruce Clarke,[12] Mr. C. B. Keetley,[13] Dr. A. Christy Wilson,[14] and Mr. A. Basil Hall.[15] A few short series of cases have been put on record. Mr. B. G. A. Moynihan[16] has published 15 operations for perforated gastric ulcer with nine recoveries. On one of the patients gastro-jejunostomy was performed at the time of the suture of the ulcer. Two patients could not be traced, and of the remaining six one relapsed and subsequently required gastro-jejunostomy. It should be noted, however, that several of the cases are comparatively recent, the earliest being less than four years ago and four less than two years ago, so that relapse may yet occur. In Dr. Christy Wilson's case the interval between perforation and relapse was five years. Mr. A. E. Barker,[17] in a paper read before the Clinical Society of London, mentioned that one out of five cases which had recovered relapsed and threatened a second perforation. Mr. T. Crisp English[18] traced 15 out of 22 patients who had recovered after operation at St. George's Hospital. Of these 11 had no return of symptoms, while four suffered from gastric trouble, which he considered was due to simple dyspepsia and not to gastric ulcer.

This subject is one which merits full investigation by ascertaining the after-history of a large number of patients in whom perforated gastric ulcers have been sutured. As a contribution to this inquiry I have endeavoured to ascertain the subsequent history of the 54 patients in my series who recovered after operation for perforated gastric ulcer. Of these 54 patients I have succeeded in tracing 35. Two of them upon whom I performed gastro-jejunostomy at the time of perforation have remained quite well during the interval which has elapsed since operation, in one case of two years and in the other 15 months, and both are able to eat ordinary food without indigestion. Of the remaining 33, 16 are at the present time quite well and have had no gastric symptoms, while 17 have suffered from gastric trouble. Of these 17 patients, one died from a second perforation 21 months after the first perforation, two subsequently required gastro-jejunostomy, while nine have at the present time definite symptoms of gastric ulcer and five have symptoms probably due to simple dyspepsia. So that of the cases in which gastro-jejunostomy was not performed, even assuming that all the untraced cases have remained in good health, 12—i.e., nearly 23 per cent.—of the patients who recovered have had recurrent gastric ulcer, one case proving fatal and two requiring further operation. There appears, therefore, from the after-histories of the patients operated on for perforated gastric ulcer some justification for the prophylactic performance of gastro-jejunostomy. But some more urgent reason is required. Our concern is for the immediate saving of life; the ultimate result is of secondary consideration. I venture, however, to suggest that the routine performance of gastro-jejunostomy would diminish

[5] New York Medical News, April 25th, 1896.
[6] Philadelphia Medical Journal, 1898, p. 1104.
[7] Brit. Med. Jour., vol. ii., 1894, p. 859.
[8] Ibid., vol. ii., 1899, p. 963.
[9] THE LANCET, Sept. 30th, 1905, p. 944.
[10] Brit. Med. Jour., vol. ii., 1905, p. 779.
[11] Centralblatt für Chirurgie, Leipsic, 1897, p. 739.
[12] Brit. Med. Jour., vol. ii., 1905, p. 777.
[13] THE LANCET, March 29th (p. 884) and April 5th (p. 955), 1902.
[14] THE LANCET, Jan. 16th, 1904, p. 160.
[15] Brit. Med. Jour., vol. ii., 1903, p. 896.
[16] British Medical Association meeting, 1905. THE LANCET, July 29th, 1905, p. 326.
[17] THE LANCET, Dec. 16th, 1899, p. 1668.
[18] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvii., p. 27.

the mortality following operations for perforated gastric ulcer for the following reasons.

In the first place, Finney[19] states that in 20 per cent. of the cases there is a second perforation. If only one of two perforated ulcers be sutured death will almost inevitably ensue, but if a gastro-jejunostomy be performed the patient will still have a fair chance of recovery. In two of my own cases suture of the ulcer was impossible, in one case owing to its situation on the posterior wall of the duodenum, and in the other owing to its size and nearness to the cardiac orifice, but in both cases I observed that as soon as a short circuit was established between the stomach and jejunum leakage from the perforation ceased and both patients recovered. Many writers have emphasised the importance of a careful search for a second perforation. I suggest that the time may be more profitably spent in performing gastro-jejunostomy, which is probably of advantage in every case, while search for a second perforation will in four cases out of five prolong the operation to no useful purpose.

Secondly, in a considerable number of cases there are one or more ulcers present in addition to the one that has perforated. In the present series a second ulcer was present in exactly one-third of the fatal cases. In other words, although the patient survives perforation of one ulcer there is still the risk of perforation of another. Such cases have been recorded by Mr. A. J. Pepper,[20] Mr. E. W. Selby,[21] and others. In my series death was due to this cause in two instances. From our knowledge of the effect of gastro-jejunostomy on gastric ulcer I think we may fairly assume that the risk of this complication would be diminished by its performance.

Thirdly, in three cases in my series death was due to hæmatemesis, in one case on the twelfth day, in another on the ninth, and in another on the fifteenth. In one of the cases a second ulcer, and in the other two the ulcer which had been sutured, was the source of the bleeding. Had gastro-jejunostomy been performed these ulcers would probably have been healing rather than progressing and so hæmorrhage would have been less likely to occur. It may be objected that there are on record cases in which hæmatemesis has occurred after, and in spite of, gastro-jejunostomy, but as I have already pointed out the number of cases in which hæmatemesis has occurred after gastro-jejunostomy is few.

Fourthly, in eight of the cases in this series death was the result of fresh extravasation of gastric contents due to cutting out of the sutures by which the perforation had been closed. This may have been due to ulceration along the line of suture or insufficient invagination of the stomach. If the ulcer be near the pylorus it is often impossible to invaginate sufficient stomach wall without the risk of narrowing the pyloric orifice. If a gastro-jejunostomy be performed the invagination may be made as freely as may seem desirable and, further, far better conditions are secured to promote healing of the line of suture. Altogether 13 patients died from causes which *might* have been prevented by gastro-jejunostomy. I do not claim a certainty, only a possibility, but I submit that a procedure which offers even a possibility of diminishing the mortality from operation by 11 per cent. deserves further consideration. I have, however, an additional and, it appears to me, more weighty reason than those I have already advanced. There can be little doubt that the best, if not the only efficient, method of draining the peritoneal cavity is through the intestines and intestinal lymphatics. Such drainage is promoted and encouraged by peristaltic movements of the intestines. Our aim therefore should be to start intestinal movements as soon as possible after operation. Now there would probably be considerable risk in giving purgatives and large doses of strychnine within a few hours of simple suture of a perforated gastric ulcer, but this, I believe, can be done with safety provided a gastro-jejunostomy has been performed at the same time. Further, the purgative acts more certainly and more quickly when there is a short circuit between the stomach and jejunum. In these cases I usually commence the administration of small doses of calomel as soon as the patient has recovered from the anæsthetic; the worse the case the earlier the calomel is given. Of the safety of this procedure I think the cases I have recorded are fair evidence.

Two objections have been raised against the performance of a gastro-jejunostomy at the same time as suture of the perforation: first, that the tissues are not in a condition for a plastic operation; and secondly, that it unduly prolongs the operation. As regards the first objection, I can only state my experience that even in cases of septic peritonitis peritoneal surfaces unite provided they are kept in apposition by the firm pressure of a continuous suture. The specimen (No. 2427 M.R.C.S.) taken from the one fatal case of the four in which I have performed gastro-jejunostomy in cases of perforation shows that although the patient died within 19 hours from virulent streptococcic peritonitis the anastomosis was quite firm and the accompanying micro-photograph (Fig. 1) shows that there is abundant plastic

FIG. 1.

Section showing the rapidity with which peritoneal surfaces unite even when peritonitis is present. From a patient who died from streptococcic peritonitis 19 hours after gastro-jejunostomy performed for a perforated gastric ulcer.

exudation between the two peritoneal surfaces. As regards the second objection, if the anastomosis be effected by continuous sutures it need not prolong the operation more than five or, at the outside, seven minutes and I think it will be conceded that a patient who is too ill to bear prolongation of the operation for seven minutes has, in any circumstances, little chance of recovery. If, as I have already suggested, instead of spending time in searching for a second perforation the time so saved be utilised for effecting the short circuit the duration of the operation need not be extended at all.

There has been much discussion as to the relative merits of sponging and flushing in these operations. It is a subject which cannot be decided by statistics but by the combined experience of individual surgeons. During the time I was resident anæsthetist at St. Bartholomew's Hospital I had many opportunities of watching the immediate effects of flushing the abdominal cavity, and I convinced myself by many observations that flushing, so far from improving the patient's condition as some authorities maintain, causes considerable shock. It is, I believe, because the immediate behaviour of the pulse differs according to the degree of anæsthesia that contrary views are expressed as to whether flushing stimulates or causes shock. During deep anæsthesia the effects of the shock caused by flushing are as it were latent, but its effects are manifest as soon as the patient passes to a lighter degree of anæsthesia. If during the flushing the patient be lightly under the influence of the anæsthetic the pulse at once increases in frequency and becomes perceptibly weaker. If, on the other hand, the patient is deeply anæsthetised the pulse is little affected, but if the anæsthetic is discontinued for a few minutes the effect of the flushing is at once apparent in the weakening and increased frequency of the pulse. Patients in whom the abdomen has been flushed are, other things being equal, always more collapsed at the end of an operation than those in whom it has not been done, and their recovery from the anæsthetic is less rapid. Furthermore, most surgeons are agreed that no amount of flushing will thoroughly cleanse the peritoneal cavity, and it may, as has been suggested

[19] Annals of Surgery, July, 1900.
[20] Brit. Med. Jour., vol. ii., 1894, p. 861.
[21] THE LANCET, Nov. 30th, 1895, p. 1348.

by Sargent, do harm by washing out phagocytes. I believe, therefore, that the evils of flushing more than counterbalance its supposed advantages.

As regards mopping or sponging it appears to me of such importance to establish early intestinal peristalsis *after* operation that we had best avoid any procedure which involves manipulation of the intestines during the operation and limit sponging to the space behind and above the liver. The fluid in Douglas's pouch may be sucked out by means of a soft rubber tube with little disturbance of the intestines. To Mr. Pearce Gould's remark,[22] "the key to the situation lies in the perfect cleansing of the peritoneum," I would add, the key to the cleansing of the peritoneum is the promotion of drainage through the intestinal lymphatics by early intestinal peristalsis.

To sum up: the performance of gastro-jejunostomy in addition to suture of a perforated ulcer (1) improves the after-condition of those who recover, but of greater importance, (2) lessens the risk in cases where a second perforation is undiscovered, (3) diminishes the risk of perforation of a second ulcer, (4) diminishes the risk of hæmatemesis after operation, (5) allows more efficient infolding of the ulcer in cases where it is in the pyloric third of the stomach, (6) promotes more rapid and certain healing of the line of suture and so lessens the risk of further leakage, and (7) permits earlier feeding and earlier administration and more rapid action of purgatives and so secures more efficient drainage of the peritoneal cavity. I submit, therefore, that the routine performance of gastro-jejunostomy in cases of perforation deserves a very thorough and extended trial.

INFANTILE HYPERTROPHIC STENOSIS OF THE PYLORUS.

I use the term "infantile" in preference to "congenital," as the hypothesis that the disease exists before birth has not yet been verified. It is only within recent years that the disease has been recognised clinically. According to Professor William Osler[23] the earliest record of a case is that described by Hezekiah Bardsley in the year 1788 under the title of "A Case of Scirrhus in the Pylorus of an Infant." Additional cases were reported by Williams[24] in 1841 and Daworsky[25] in 1842, but these isolated records were forgotten until the year 1888, when Hirschsprung[26] by the publication of two additional cases drew attention to the subject anew. Since that time over 80 cases have been published. The pathology, symptoms, and diagnosis have so fully and so recently been discussed by Dr. John Thomson,[27] by Dr. E. Cautley, and by Mr. Clinton T. Dent in his Hunterian lectures last year,[28] that I shall confine my remarks to the subject of the treatment of the affection.

TREATMENT.

There can be little doubt as to the possibility of recovery without surgical intervention. Dr. F. E. Batten[29] and Dr. H. W. Gardner[30] have recorded such cases. Dr. G. F. Still has had under his care several undoubted cases in which recovery has ensued after regular daily washing out of the stomach. In all of his cases there were a dilated stomach and a definite pyloric lump, and in Dr. Batten's case the diagnosis was subsequently verified post mortem, as the child after gaining eight and a half pounds in five months succumbed three months later to an attack of gastro-enteritis and pneumonia. I myself have seen one case recover with regular daily lavage.

These facts should make us pause before advocating operation and it is important to note in the cases which have been treated successfully without operation vomiting has diminished and finally ceased only after some weeks of regular treatment. Therefore a very thorough and extended trial should be given to [illegible]ding and regular lavage before resorting to surgica[illegible]es. It must be admitted that in hospital practice thi[illegible]atment requires so much individual attention that it is difficult to carry out, while the impossibility of feeding the children by the breast in an institution is a serious drawback, but in private practice the services of a wet nurse can be requisitioned in addition to the undivided attention of a skilled nurse.

[22] Loc. cit.
[23] Boston Medical and Surgical Journal, March 12th, 1903.
[24] London and Edinburgh Journal of Medical Science, 1841, p. 23.
[25] Archives Générales de Médecine, 1843, vol. ii., p. 95.
[26] Jahrbuch für Kinderheilkunde, N.F., Band xxviii., 1888, S. 61.
[27] Scottish Medical and Surgical Journal, June, 1897.
[28] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 481.
[29] THE LANCET, Dec. 2nd, 1899, p. 1511.
[30] THE LANCET, Jan. 10th, 1903, p. 100.

It is noteworthy that in many of the cases which have been successfully treated by Loreta's operation vomiting has not ceased immediately and the feeding of the infant has required much care and patience for some time. Had this patience been exercised before operation possibly the necessity for operation might not have arisen. Present experience, then, seems to indicate that if these cases are recognised early and treated by systematic lavage and fed by the breast there is a reasonable prospect of recovery. Whether this recovery is absolutely permanent time alone can show. At any rate, if operation can be delayed until the infant is older and stronger something will have been gained.

Schwyzer in 1897 was the first to propose, and Meltzer in 1898 the first to practise, surgical intervention for this disease. Four different procedures have been adopted—namely, pylorectomy, gastro-jejunostomy, pyloroplasty, and pylorodiosis, or Loreta's operation. Pylorectomy may be at once dismissed as an unsuitable operation for such young patients. Mr. H. J. Stiles, who, acting on the opinion expressed by Meltzer, performed the only case recorded, condemns it as unnecessarily severe and unjustifiable. I have collected all the cases of operation for infantile hypertrophic stenosis of the pylorus which I can gather.

The first successful case of gastro-jejunostomy for this disease was performed by Löbker[31] in July, 1898. Of the 25 cases tabulated 14 died and only 11 recovered, truly an appalling mortality. It is only fair, however, to point out that many of the patients were very emaciated and not in a favourable condition for any operation. In two cases probably difficulty with the anæsthetic was partly responsible for the after-result. In one case death was clearly due to the Murphy's button employed to effect the anastomosis, an appliance the use of which is open to objection in an adult but much more so in a child. In one case the symptoms persisted owing to blocking of the anastomotic opening by folds of mucous membrane. The operator points out that this accident might have been prevented by excision of a portion of mucous membrane or by making the opening larger. In another case operation failed to give relief because the jejunum had been unwittingly twisted. The posterior operation was performed in 18 of these cases and possibly the less severe anterior method would give better results. When it is impracticable on account of the shortness of the jejunal mesentery I would suggest the adoption of Brunner's[32] anterior retrocolic method.

Three out of the 12 patients who recovered from the immediate effect of gastro-jejunostomy died later—one 11 days, one five weeks, and another seven weeks after operation. In the remaining nine patients the after-result has been excellent. The patients who were the subjects of the first three successful cases are still alive and their subsequent history, which has not been published before, is given in my table. Dr. Abel very kindly put me in communication with the father of his patient and his letter is so interesting that I will give a translation of the most important part of it:—

> My son has developed into a strong, healthy boy, now nearly seven years old, mental capacity normal, and well developed, five senses normal, good appetite, digestion since operation until present time exceedingly good. Two years ago constipation (no motion passed) for three days, doctor thought it was indigestion. Except for this digestion has been all along quite regular. Has had no sickness. Since operation the child has been perfectly well. No apparent disadvantage or bad consequences from the operation. Only peculiarity noticed is that the abdomen is rather full. He weighs 23½ kilogrammes and goes to school.

The child at the time of operation was eight weeks old. Löbker's case, operated on at the age of ten weeks, has proved equally satisfactory. This patient was also six years old at the time I heard from Dr. Löbker a year ago and he informed me that the child "is quite well and fully developed both bodily and mentally." Fritzche's patient has also been in perfect health since the operation, now six years ago. I have already referred in my first lecture to the importance of these cases as evidence that gastro-jejunostomy has no evil effect on the metabolic processes of the human body.

Pylorodiosis has been performed 21 times with six deaths and 15 recoveries. In three of the cases the pylorus or duodenum was ruptured during the operation with a fatal result in two of them. In the third the rent was sewn up and the child recovered. The patient in the first successful case recorded by Dr. Nichol was in good health

[31] Verhandlungen der Deutschen Gesellschaft für Chirurgie, Band xxix., 1900, S. 1, p. 143.
[32] Wiener Klinische Wochenschrift, 1892, vol. v., p. 375.

four years after operation. Three of the other patients who recovered from the operation speedily relapsed: two of them died, while on the third gastro-jejunostomy was performed shortly afterwards with a successful result. Relapse has occurred in several of Dr. Nichol's later cases, of which I have been unable to obtain details. He now advises that gastro-jejunostomy should be performed as well as pyloro-diosis. Why the double operation is necessary is not explained. In one of the other cases of recovery the patient died in a convulsion two years after operation.

The first pyloroplasty was performed by Braun. The child died from shock 20 hours later. I have collected nine cases in all. Six of the patients recovered and three died. In one of the fatal cases complete obstruction of the pylorus due to redundant folds of mucous membrane was found at the necropsy. In another case death resulted from complete pyloric stenosis, the result of operation. One of the patients who recovered from the operation died from diarrhœa eight weeks later. It is not clear that this child was much benefited, for it is noted that some vomiting persisted for a week after operation. In several other cases there has been trouble with the feeding, a serious matter when the condition of the child before operation is considered. So far the after-results in the five cases which have survived have been excellent. I have myself seen one of the little patients. He was operated on by Mr. Clinton Dent and is at the present time certainly in perfect and robust health.

THE CHOICE OF OPERATION.

So much turns on the condition of the infant at the time of operation that it is impossible to estimate the relative mortality of these different procedures, and it is probably on this factor and on the skill of the operator rather than on the particular operation adopted that the immediate result depends. The one certain fact is that surgical intervention in these cases is a serious matter and that every effort should be made in the direction already indicated to obviate the necessity for operation. We must, on the other hand, guard against delay until the child is in such a condition—as in many of the recorded cases—that recovery is almost hopeless. Pylorodiosis appears to be the least severe procedure, but the after-results can hardly be considered satisfactory. The choice then lies between pyloroplasty and gastro-jejunostomy. Pyloroplasty has been warmly advocated and ably supported by Mr. Clinton Dent.[33] He maintains that it is less severe, can be done through a small incision, and brings about quite as complete recovery as gastro-jejunostomy. But pyloroplasty is not always so easy as its advocates would have us believe. Even in an adult it is difficult to be certain as to the size of the channel left after the suturing and this difficulty is much greater in an infant, and it is significant that in two of the nine recorded cases complete pyloric obstruction resulted from the operation, a complication which I think is likely to occur in a not inconsiderable proportion of the cases. With our present knowledge it is difficult to decide whether pyloroplasty or gastro-jejunostomy is the better operation. Whether the remote results will prove as satisfactory after pyloroplasty as after gastro-jejunostomy we do not know. I agree with Mr. Stiles that in principle gastro-jejunostomy is the better operation for the following reasons. 1. It is preferable to operate on normal than on morbid tissues. 2. Feeding can be commenced at once after gastro-jejunostomy, no small advantage in these cases, whereas in several of the cases of pyloroplasty the feeding has caused no little anxiety. 3. If the anterior operation be performed it can be completed within 25 minutes, which is little longer than the time required for pyloroplasty. 4. The incision need be no longer than that required for pyloroplasty; two and a half inches is quite sufficient. If the patient's shoulders be slightly raised there is no fear of protrusion of intestine. 5. The remote results are highly satisfactory. We do not yet know that those of pyloroplasty are as good.

THE SURGICAL TREATMENT OF CANCER OF THE STOMACH.

The time at my disposal will not allow me to deal with the subject of the diagnosis of gastric carcinoma. To do so would be impossible within the limits of a single lecture. I will only say in passing that it is chiefly to chemical methods that we must look for a solution of this problem, although these must never be dissociated from accurate clinical observation. Chemical results alone are ofttimes misleading but in conjunction with the clinical features of the case they are of the highest value and will but rarely lead to error.

The first successful resection of the pylorus in man was performed by Billroth in the year 1881. The mortality of the earlier operations was enormous and the after-results were not encouraging. Writing in 1886 Mr. H. T. Butlin said: "The condition of the patients who recover does more, to my mind, to discredit the operation than the excessive mortality." That this weighty protest was fully justified is proved by the records of the cases at that time. Undoubted progress has since been made but to a less extent than in the treatment of malignant disease in other parts of the body. In the hands of Butlin, Watson Cheyne, and Halsted the operative treatment of malignant disease of the breast has attained a degree of success undreamt of a few years back. Although gastric surgery lags behind I shall endeavour to show that radical operations are attended with a greater measure of success than is generally believed and that the results compare favourably with the ultimate success attained in the treatment of mammary cancer by the surgeons of 20 years ago. Earlier diagnosis and earlier operation will give still better results in the future. As Terrier remarks, "Le jour où les médecins auront compris la nécessité d'opérer de bonnes heures, les résultats seront bonnes."

It is impossible not to admire the daring which led Connor of Cincinnati to conceive and to perform the operation of total extirpation of the human stomach. His surgical courage was not rewarded by success as the patient died on the table. This was in the year 1883 and it was not until 14 years later that Schlatter of Zürich performed a similar operation successfully. I have collected 27 cases of total gastrectomy for malignant disease. Of the 27 patients ten died and 17 recovered, a result surprisingly good considering the extent and severity of the operation.

The term "sub-total gastrectomy" is a convenient one for those cases in which a small portion of the fundus of the stomach is left and so are not anatomically complete extirpations although often described as such. For resections of lesser extent the term partial gastrectomy is applicable and the use of the term pylorectomy had better be discarded, as it does not convey an accurate idea of the operation as it is usually performed at the present day. In the ideal removal of a growth limited to the pylorus at least one-half of the stomach is better removed.

The choice of method.—Three different methods have been adopted for restoring the continuity of the alimentary canal after removal of part of the stomach. 1. Direct end-to-end union of the duodenum to the remaining portion of the stomach (Billroth's first method). 2. Termino-lateral anastomosis; closure of the end of the stomach and implantation of the duodenum on to the posterior gastric wall (Kocher's method). 3. Lateral anastomosis; closure of both the stomach and the duodenum and lateral anastomosis of the jejunum to the portion of stomach which is left (Billroth's second method).

From the time of Senn onwards there has been considerable discussion as to the relative merits of end-to-end and lateral anastomosis, and even at the present time the subject is not one upon which surgeons are unanimous. From the æsthetic point of view doubtless end-to-end anastomosis is the ideal method, but perusal of the recorded cases and of hospital statistics leaves no doubt that it is less safe than either lateral implantation or lateral anastomosis. In performing end-to-end anastomosis it is more difficult to secure accurate apposition without undue invagination of the gut than by either of the other two methods. This is particularly the case when, as in gastrectomy, the ends to be united are of unequal size and a large proportion of the deaths which have occurred after gastrectomy have been due to leakage at what has been termed the "fatal suture angle of Billroth." In other cases the suturing has interfered with the blood-supply of the free border of the intestine and so caused gangrene and consequent leakage. The use of Mayo Robson's bone bobbin probably diminishes this risk, but even so the time and care required to make the open end of the stomach fit the end of the duodenum exactly is a serious drawback to end-to-end anastomosis. Mr. Mayo Robson and Mr. Moynihan[34] in the first edition of their work on the stomach adduced

[33] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 481.

[34] Diseases of the Stomach, 1901, p. 81.

Jöslin's experiments on intestinal absorption after gastro-jejunostomy as an argument in favour of end-to-end union, but I submit that this argument no longer holds good. Nevertheless, whether from physiological considerations or from the result of their experience I do not know, surgeons of such eminence as Mikulicz and Krönlein[35] have given their opinion in favour of end-to-end anastomosis. Their immediate results do not, however, compare favourably with those obtained by Kocher with his implantation method. In the statistics, to which I shall refer again, the mortality from operation in 100 cases by Mikulicz is 37 and in Krönlein's series 28 per cent., whereas up to the end of 1905 Kocher had performed 84 resections for carcinoma by his own method with a mortality of only 15 per cent., while Dr. W. J. Mayo and Dr. C. Mayo have performed 43 resections by the lateral method with a mortality of 16 per cent. Mr. Makins[36] has stated that in a series of 66 recent cases of end-to-end union leakage occurred in 11, or 16 per cent. I have recently collected a series of 59 cases, and in 23 per cent. of them leakage was found at the post-mortem examination, while in 12 per cent. of those who recovered leakage occurred shortly after operation but without causing a fatal result. On the other hand, in a series of 79 lateral anastomoses leakage occurred in three only, and in one of these pressure gangrene, due to a Murphy's button, was the cause of this accident. It is worthy of note that of those patients in whom his method of lateral implantation was employed Kocher lost only one from leakage at the point of union. These facts are highly suggestive. Although individual surgeons have had brilliant successes with end-to-end union, the difficulty of guarding against leakage is shown by the records of even the most experienced. There can be little doubt that lateral anastomosis is safer than end-to-end union, and as safety must be our first consideration it is a subject for serious thought whether, at any rate in performing gastrectomy, end-to-end union should ever be employed. Apart from the immediate risk, there is after end-to-end union the remote risk of obstruction either from the formation of a diaphragm or from contraction of the opening. This is well illustrated by a case of which Mr. W. Bruce Clarke has kindly given me details. 18 months after operation the patient developed signs of obstruction. When seen he was too ill for operation and he died shortly afterwards. At the post-mortem examination a non-malignant ulcer was found at the site of anastomosis.

The advantages, then, of lateral anastomosis may be summed up as follows. First and foremost it is safer. There is less risk of leakage, as danger from the fatal suture angle is avoided and the position of the incision into the intestine at its free border wholly obviates the occurrence of gangrene from interference with the intestinal circulation. Secondly, there is no fear of the formation of a diaphragm and the opening may be made so large that the effect of subsequent contraction is discounted. Thirdly, as the risk of leakage is so small, feeding may be commenced at once, a consideration of no small importance in these cases. I usually commence giving liquid nourishment as soon as the patient has come round from the anæsthetic, while soft solids are allowed on the third or fourth day. Nothing except saline injections are given by the rectum. There is only one objection to lateral anastomosis and that is the additional time required for the closing of the blind ends of the stomach and duodenum, but when in an end-to-end union the openings to be joined are of unequal size, as is the case in gastrectomy, the reduction of the larger opening to fit the smaller one accurately takes very nearly as long as the suturing of the two blind ends in lateral anastomosis. I have adopted the method by lateral anastomosis in the cases of partial gastrectomy which I have performed and in two of them I was compelled to remove so much of the duodenum that it would have been impossible to unite it to the stomach.

Kocher has achieved such success with his lateral implantation method as to disarm criticism. It is safer than end-to-end anastomosis and possibly is more quickly performed than lateral union. There is, however, one objection to it—namely, that it cannot be carried out in every case, especially if, as in two of my own cases, the duodenum is involved in the growth. A method which is applicable in every case appears to me preferable to one which is not, as surgery is simplified by unification of methods.

I would here emphasise the necessity of leaving a drain down to the blind end of the duodenum when the method by lateral anastomosis is adopted. A number of the deaths which have occurred after employment of this procedure have been due not to leakage at the site of union but from the blind end of the duodenum. In my first successful cases leakage ensued but fortunately the bile made a track for itself and escaped at the upper end of the abdominal wound, so the leakage was attended with no ill effect. My third case I drained and in this also there was leakage of bile for two weeks. In my last case so much of the duodenum was removed that, owing to the depth of the wound, I was unable to close it completely. Bile escaped in large quantities from the third to the eighth day after operation, after which time the sinus rapidly healed up. I think, therefore, that it is advisable always to leave a gauze drain in the neighbourhood of the blind end of the duodenum.

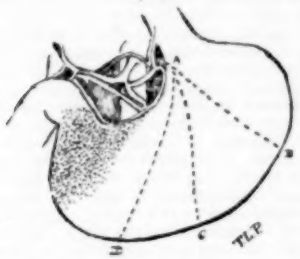
In 1891 Tupolske[37] suggested that partial gastrectomy should be performed in two stages. He first performed gastro-jejunostomy and three months later successfully resected the pyloric end of the stomach. Quénu,[38] Doyen, Czerny, and Hahn have approved of this method and Franke,[39] Kummel,[40] and Mayo Robson have reported successful cases. Mayo Robson,[41] however, objects to this method as a routine procedure on the ground that the patient may derive such benefit from the preliminary gastro-jejunostomy that he does not appreciate the necessity of a second operation until it is too late. I have experienced this difficulty on two occasions but I may add that one of the patients is alive and well at the present time nearly four years since operation. This was one of my earlier cases and I have no doubt that I was mistaken in regarding the pyloric tumour as malignant. There is another objection to gastrectomy in two stages. At the second operation the position of the stomach is altered by the division of the its upper connexions and this may so disturb the anastomosed loop of jejunum that kinking and obstruction of the opening ensue. I lost my first case of gastrectomy from this cause. Possibly it is a danger which may be prevented by careful anchoring of the stomach, but it seems to me that there must be some risk of this accident if there be any disturbance of the anastomosed loop from the position which it has assumed after anastomosis. It appears best, therefore, to perform the resection and anastomosis at the same time, reserving the operation in two stages for patients who are not in a state to bear the longer operation. After gastro-jejunostomy the patient's condition usually rapidly improves and after two or three weeks a radical operation may be undertaken with a greater prospect of success. In performing partial gastrectomy by lateral anastomosis the usual plan is to resect first and then unite the jejunum to the stomach. Personally I prefer to reverse this order and for three reasons. First, if the gastro-jejunostomy be left to the last there is a risk that the surgeon may be tempted to perform it hurriedly owing to the condition of the patient; secondly, after the gastro-jejunostomy has been performed the surgeon is in a better position to judge how the patient will stand the more severe operation of resection; and, thirdly, in a tumour of doubtful nature the time occupied by the anastomosis can be utilised to freeze and to examine microscopically a portion of the tumour. This occupies less than five minutes, so that the exact nature of the tumour can be decided by the time the anastomosis is complete.

While almost all surgeons of experience in these cases are agreed that the whole of the lesser curvature with the glands in the corresponding portion of the lesser omentum should be removed, there is considerable difference of opinion as to how much of the greater curvature may be left. The accompanying diagram (Fig. 2) shows the three lines of incision which have been practised. Dr. Mayo and Mr. Mayo Robson make the incision immediately to the right of the left gastro-epiploic artery. Hartmann leaves the greater part of the greater curvature, while Mikulicz preferred to divide the stomach by an incision about midway between these two. Cuneo has pointed out the tendency of carcinoma to spread towards the lesser curvature and that as the lymph current in this situation is from right to left it is important to make the section as far to the left as possible. The

[35] Beiträge zur Klinischen Chirurgie, 1896, Band xvii., p. 93.
[36] Brit. Med. Jour., vol. ii., 1903, p. 876.
[37] Philadelphia Medical News, March, 1893, p. 263.
[38] Revue de Chirurgie, 1896, p. 850.
[39] Centralblatt für Chirurgie, 1897, p. 98.
[40] Archiv für Klinische Chirurgie, Band liii., p. 87.
[41] Brit. Med. Jour., vol. i., 1900, p. 696.

lymphatic stream along the greater curvature is from left to right; hence more of the greater curvature may be safely left. The lymphatics in the fundus are scanty and pass towards the hilum of the spleen. The term "isolated area" has been suggested for this portion of the stomach; it is rarely affected in carcinoma of the pylorus and so may be safely left. The excellent results attained by the modern extensive operations practised for mammary carcinoma suggest that better results than heretofore will attend the more radical operations now practised for carcinoma. This

FIG. 2.



Lines of incision used in partial gastrectomy. A B, Incision of W. J. Mayo. A C, Incision of Mikulicz. A D, Incision of Hartmann.

hope is justified by the large proportion of ultimate successes which have followed the complete removal of the stomach. Fortunately, in few cases is such an extensive operation required. Whether the incision recommended by Dr. W. J. Mayo is advisable in every case cannot at present be determined. It is perhaps unwise to advocate a less radical operation, but in view of the work of Cuneo it is possible that when the growth is limited to the pylorus the incision of Mikulicz is sufficiently wide of the disease. This incision involves less risk of interference with the blood-supply of the colon and also allows more space for the anastomosis of the jejunum to the stomach.

THE RESULTS OF GASTRECTOMY.

1. *The immediate results.*—I have collected all the published cases of total gastrectomy for malignant disease, as well as seven unpublished ones. They number 27 in all; of these, 17 patients recovered and ten died—a mortality of 36 per cent. I have collected all the cases I can discover of subtotal gastrectomy—20 in number. 14 patients recovered from operation and six died—a mortality of 30 per cent. The above figures probably fairly indicate the mortality from total and subtotal gastrectomy, as most of these extensive operations are published whether successful or not, but when we come to consider the mortality from the more usual and less severe operation of partial gastrectomy no purpose is served by calculating the mortality from isolated cases collected from literature. Great as the mortality is, it would probably be greater if all the unsuccessful cases were recorded, but by tabulating the series of cases published by various operators we can gain some idea as to the mortality of this operation in skilled hands.

Maydl	reports	25	cases with	4	deaths.
Kocher	,,	101	,, ,,	26	,,
Mikulicz	,,	100	,, ,,	37	,,
W. J. and C. Mayo	,,	43	,, ,,	7	,,
Krönlein	,,	50	,, ,,	14	,,
Roux	,,	39	,, ,,	13	,,
Kappeler	,,	30	,, ,,	8	,,
Garré	,,	26	,, ,,	7	,,
Hartmann	,,	22	,, ,,	7	,,
Total		436	,, ,,	123	,,

Rate of mortality, 28 per cent.

Taking some of the individual series we obtain better results than this. Thus the mortality in both Maydl's and W. J. Mayo's and C. Mayo's series is 16 per cent. Dr. W. J. Mayo has been good enough to give to me his later statistics up to the end of last year. He and Dr. C. Mayo have now performed 100 gastrectomies with a mortality of exactly 14 per cent. Dr. Elsaesser has kindly furnished me with complete statistics of Professor Kocher's resections for carcinoma. Up to the end of last year Kocher had performed 110 resections; 83 patients recovered and 27 died, a mortality of 24 per cent. Taking, however, only the cases between 1898 and 1905 he has performed 58 resections for malignant disease with a mortality of just over 15 per cent. Clearly the mortality from operation is a diminishing one and I think that we may fairly conclude that at the present time it is well under 20 per cent.

2. *The remote results of gastrectomy.*—The remote results of gastrectomy may be considered from two points of view: first, as to the effect of removal of all or part of the stomach on the health of the patient; and, secondly, as to the freedom from recurrence of the disease.

While the value of a good stomach is undoubted, fortunately Nature is able to dispense with this organ, as most of its functions can be performed vicariously by other portions of the alimentary canal. The stomach performs four main functions. First, it acts as a reservoir but after its complete removal the lower end of the œsophagus becomes dilated and serves this purpose, although to a limited extent. Secondly, the mechanical function of the stomach—namely, maceration—can be replaced by careful dieting. Thirdly, the secretory or chemical functions, the secretion of pepsin, hydrochloric acid, and rennin, can be effectively replaced by the intestine. Thus the functions of the rennin can be performed by the pancreatic juice, while the antiseptic action of the hydrochloric acid which prevents the formation of lactic acid is carried on by the bile. Fourthly, the resorptive functions, by which peptones are absorbed, are relegated to the small intestine. Nature has thus duplicated three out of the four functions performed by the stomach, although the loss of the gastric secretion cannot altogether be compensated; "those who have lost it," says Lubarsch, "have one weapon less in the struggle for existence." Pachon and Carvalho [42] have shown that dogs may gain in weight and remain in perfect health after removal of the entire stomach, while the elaborate observations made on Schlatter's [43] patient prove that the same holds good of human beings. These observations record that the absorption of albumin was unaffected and that no putrefactive changes occurred in the intestines, which shows that the absence of the gastric juice does not lead to decomposition in the intestines.

Next as to the freedom from recurrence. First, let us consider the cases of total gastrectomy. The full history of Schlatter's case has already been published. Of the remaining 17 cases in which the patients recovered from the operation I have been able to ascertain the further history of all except two. Five have since died; one patient lived three years and nine months, one lived a year and nine months, one lived 13 months, one nine months, and one seven months, thus giving an average duration of life after operation of 19 months. Dr. Brooks Brigham's patient is at the present time in perfect health and by a curious coincidence it is exactly eight years to-day since the operation was performed. Dr. Macdonald's patient is also alive and at work as a farm labourer, although seven years have gone by since his operation. Of the other patients, one is alive and well five years after operation, one four years and nine months, one four years, one a year and nine months, and one seven months, so that 17 per cent. of the patients who recovered are alive and free from recurrence five years after operation.

Let us next look at the results of the subtotal gastrectomies. Of the 14 patients who recovered from operation seven are now dead. Dr. Porges has kindly informed me that Maydl's patient died from heart trouble 11 years after operation, apparently free from recurrence. He remained free from gastric symptoms and perfectly well until within a few days of death. Of the other patients who have since died two died from recurrence two years and nine months after operation, two died from recurrence a year and nine months after operation, and one died from recurrence one and a half years after operation. M. Boeckel's patient died from intestinal obstruction but was free from recurrence seven and a half months after operation. The average duration of life after operation of those who died from recurrence was thus 22½ months. Of the remaining six patients I have been able to ascertain that three are or were alive, as follows: one five and a half years after operation, one four years after operation, and one three and a half years after operation.

[42] Comptes Rendus de la Société de Biologie, 1893, p. 794.
[43] Hofmann: Münchener Medicinische Wochenschrift, May 3rd, 1898.

While I have collected all the cases of complete and subtotal gastrectomy, whether recovery ensued or not, only those cases of partial gastrectomy are included in which the patient recovered and about which I have been able to obtain further information. The final history of 14 of the patients has already been published; that of almost all the remainder I have been able to obtain from the various operators. The cases are 55 in number and are mainly collected from British records of the last 20 years. During this period I found 39 other successful cases, but as I have been unable to obtain further information as to the remote results they are not included. Of the 55 patients 35 have died since operation. One patient died from recurrence seven years and two five years after operation, but it is interesting to note that all the other patients in whom recurrence ensued died within three and a half years, so that we may say that there is at least a strong probability of cure if the patient remains free from recurrence for five years. Eight of the patients who are dead lived over three years after operation. The average duration of life was just over two years, whether death was due to recurrence or to intestinal obstruction. Of the other patients one is alive and well 14 years after operation, one seven and a half years, two six years, one five years, two four years, five over three years, and three over two years, while in the case of one patient who is alive four years and four months after operation recurrence is feared; four of the patients cannot be traced. The cases may be summarised as follows:—

—	Recovered.	Died since operation.	Still living and well. Three years after operation.	Still living and well. Five years after operation.
Total gastrectomy ...	17	5	6	3
Subtotal gastrectomy	14	6	3	3
Partial gastrectomy...	55	35	12	6
Total	86	46	21	11

So that out of the 86 patients who recovered from the operation 46, that is 53 per cent., are dead. Of these at least three died free from recurrence, one of them 11 years after operation. This case may fairly be classified as a cure. Of the patients who recovered 21, i.e., 24 per cent., are alive and well three years after operation and of these 11 have remained well for five years. In all probability these 11 patients are radically cured and if we add to this number of "cured" Maydl's patient, who died free from recurrence 11 years after operation, we see 12, or nearly 14 per cent., of the patients who recovered from operation have a reasonable prospect of remaining free from recurrence.

So far I have dealt with facts. Suppose now that the mortality from gastrectomy is 30 per cent. In skilled hands it is probably considerably less, but to err on the side of under-estimating rather than over-estimating the success of this operation let us put it at the higher figure. In this case the 86 recoveries would represent 125 operations, so that if we consider those patients alive and well five years after the operation as "cured" it follows that over 8 per cent. of the patients submitted to operation are probably cured. This method of calculation is open to objection, but the estimate closely agrees with the ultimate results of Kocher's cases. I find that of 97 consecutive cases 8 per cent. of the patients are alive and well over five years after operation, and of the 42 patients who have died only two died later than three and a half years after operation. That nearly 14 per cent. of the patients in the cases tabulated have lived free from recurrence for over five years is a fact which cannot be explained away. In Kocher's series over 11 per cent. of the patients who recovered have lived free from recurrence for over five years.

Now that the importance of performing a wide excision and of removing all the lymphatic area of the stomach with the glands along the lesser curvature is more fully recognised, doubtless we shall obtain much better results, but even so our greatest hope of success must lie in early operation.

The benefit derived from gastro-jejunostomy in cases in which there is gastric stasis and in which a radical operation is impossible is now so fully recognised that I need not enter on the subject. Until some other cure for cancer is discovered wide removal is the ideal operation.

I venture to think that we in this country take too gloomy a view as to the results of radical operations for gastric carcinoma. Optimism is always preferable to pessimism. Let us raise our ideals and if in our enthusiasm we idealise the real the day may come when we shall realise the ideal.

My task is now ended, but ere I close I must express my hearty thanks to all those medical brethren, not only in this country but on the continent, in America, and in greater Britain beyond the seas, who have courteously responded to my requests for information as to their cases, information given with a kindness and cordiality which bring home to one the depth of the *entente cordiale* which exists between the members of our profession all over the world. Though these lectures will be forgotten the collected record of their work will remain.

With my final words, Mr. President, it is at once a pleasure and a duty to thank you for the honour you have done me by appointing me one of the Hunterian professors of this year. For to lecture within these walls, hallowed by the memory of the great ones whose voices are now still, must ever be held one of the greatest honours which this College can bestow. It has been my aim to present to you some of the results of gastric surgery at the present time. While much has been done, yet much remains to be accomplished. The measure of success already achieved should encourage us one and all to go forward—

> "... ever reaping something new:
> That which they have done but earnest of the things that they shall do."

Medicine and surgery, like twin sisters, must ever go hand in hand, each gaining by the advances of the other and aiming at a common goal. But ere that goal is reached we must still further improve our craft and so perfect clinical diagnosis that it attains the accuracy of scientific demonstration. As yet we are but on the threshold. May we not hope to enter the penetralia in the near future and "uncover those secret recesses where Nature is sitting at the fires in the depth of her laboratory"? Then the surgical treatment of gastric disease will hold place as one of the most brilliant achievements of our common art. For if I may adapt the words of Macaulay, what has been accomplished already is but a part of the fruits of gastric surgery and of its firstfruits. For ours is a science "which never rests, which has never attained, which is never perfect. Its law is progress. A point which yesterday was invisible is its goal to-day and will be its starting point to-morrow."

A Clinical Lecture

ON

TWO CASES OF BULLET WOUND OF THE BRAIN.

Delivered at the Leeds General Infirmary

BY R. LAWFORD KNAGGS, M.C. CANTAB.,
SURGEON TO THE INFIRMARY.

GENTLEMEN,—I propose to speak to you to-day about bullet wounds of the skull and its contents. In civil practice these wounds are not infrequent and are more commonly produced by pistols than by rifles. Often they are suicidal, occasionally murderous, and rarely accidental. Any of you in the course of your work may be brought in contact with such an injury and therefore it is important that you should understand that bullet wounds of the skull constitute a class of injury quite distinct from ordinary fractures of the skull and have very definite peculiarities and very grave dangers. Two cases of this nature have come under my care and it may interest you and prepare the way for my remarks if I give a short account of them.

CASE 1.—A boy, aged 16 years, was admitted to hospital at 4 P.M. on Sept. 4th, 1897, half an hour after shooting himself in the right temple with a revolver. He was pallid and rather cold and frequently shuddered. He was quite

conscious, answered questions intelligently, and gave a clear account of how he came to injure himself. There was vomit on his clothes and he vomited in the theatre before the anæsthetic was commenced. The pulse was 104 and compressible. The respirations were 24. The pupils were small, equal, and active. There were no paralysis and no affection of sight or hearing. In the right temple, about one and a half inches behind and half an inch above the external angular process, was a small circular wound in the centre of a swelling due to the condition of the deeper tissues. There was no bleeding from it. The boy was anæsthetised and an oval flap containing the upper part of the origin of the temporal muscle was turned down. An aperture in the squamous portion of the temporal bone as large as a No. 9 catheter was exposed. A disc of bone with this aperture in its lower part was removed. This disc on its inner surface showed the groove for the middle meningeal artery just in front of the aperture, but the artery had fortunately escaped injury. Some fragments of bone and blood clot were removed and the dura mater was found to be perforated. This opening was enlarged and exit was given to some pulped up brain tissue and some dark granules, probably clot, for they were not gritty. A probe could be passed into the bullet track in the brain for about two inches but nothing was felt and no further attempt to reach the bullet was made. Some bleeding points were ligatured. More bone was taken away to allow for swelling of the injured brain, and an aperture one and a half inches by one inch was left. The wound was washed, the flap was replaced, and a gauze drain was inserted at the posterior angle.

Progress to recovery was uneventful. A little vomiting and slight headache had subsided by the third day, but for nearly a fortnight there was a very marked tendency to sleep. On Oct. 6th, when the boy left the hospital, he was apparently quite well and the optic discs were normal. Subsequently when the hospital had acquired an improved x ray apparatus the bullet was localised in the opposite (left) hemisphere about one and a half inches from the surface and a little higher than the aperture of entrance. Now eight years later I can give you the report of his family about him, for one and a half years ago the patient started off for America with some friends to improve his fortunes. They state that the injury has had no effect upon him in any way unless it has been to make him a sharper fellow than he was before. He has never had any fits, does not suffer from headache, and is very smart at his work, which is that of a tailor's cutter. (*Note.*—The bullet was fired from a cartridge known as 0·22 or English size 230. The bullet weighs 30 grains and the powder about three grains.)

CASE 2.—On April 18th, 1903, a youth, aged 18 years, was found semi-conscious upon a sofa, having shot himself in the forehead with a pistol. Shortly after he vomited and the vomit contained blood. When brought to the infirmary he was pallid and very drowsy and lay on his back with his eyes closed. He would answer questions rationally, but to some he would apparently not trouble to reply. There was no paralysis of eyes, face, or limbs, and his pupils were equal, contracted, and active to light. There was a small circular cleanly-cut wound with brain substance protruding one inch above the supraorbital ridge and one inch to the right of the middle line. There was some blood about the right nostril. The pulse was 80.

Operation.—The patient was anæsthetised and a semi-lunar frontal flap was turned down, exposing a circular wound in the skull from which brain substance protruded and cerebro-spinal fluid was escaping. The charred tissues round the entrance wound were cut away and the bone was trephined. Numerous small portions of the inner table were found between the skull and the dura mater and other portions in the brain. One of the pieces from the brain fitted into the edge of the hole in the bone made by the bullet. A bullet probe was passed for two inches along the track horizontally backwards with inclination inwards, but meeting with some resistance its use was discontinued. The bullet was not felt. In clipping away a blackened piece of dura mater the longitudinal sinus (?) was wounded and the profuse hæmorrhage was stopped by gauze packing, which was brought out at an opening in the replaced flap.

For 16 days the patient gave every sign of doing well. His drowsiness and headache after some fluctuations gradually disappeared. He became natural in manner and bright, wished to be allowed to get up, and even attempted to read surreptitiously, but on May 5th severe headache and a rise of temperature attracted attention and the upper margin in both optic discs was noticed to be indistinct. On the 6th a cerebral hernia began to develop and a clear yellow fluid welled up into the wound through an aperture probably marking the bullet track. (A culture from this fluid showed pure staphylococci, probably derived from the surface of the hernia.) The pain over the anterior half of the head was very severe and there was no doubt that double optic neuritis was developing. The temperature was 102·6° F. On the 7th the hernia was as large as a strawberry and occluded the opening from which the fluid had welled up. The latter now ceased to flow. There had been no vomiting since the serious symptoms began. The pulse varied between 72 and 100 and the temperature was 102·6°. On May 8th the patient complained loudly of his head and lay in bed moaning in a dazed, semi-conscious condition, beseeching some relief for it whenever he was roused. The pulse was 64. The bullet was localised by a couple of skiagrams and found to be in the right hemisphere, from half to three-quarters of an inch from the median line and, so far as could be estimated, about two and a half inches from the surface beneath the right angular gyrus. It was decided to trephine over the right angular gyrus: (1) to establish a point of least resistance and so to encourage an abscess, which was suspected to be forming slowly about the bullet, to advance towards the surface: and (2) to relieve tension and pain. The angular gyrus was chosen because the bullet was nearest to the surface at this point. At 10 P.M. a circular aperture two and a half inches in diameter was made in the bone at the selected spot. The dura mater bulged and pulsation was slight. A crucial incision was made in the dura mater and a protrusion of brain occurred through it about two inches in diameter and three-quarters of an inch above the normal surface. This was covered with gold foil and the flap was replaced. The pulse at the conclusion of the operation was 100. The patient was immensely relieved by the operation. The temperature fell to normal, the pain quickly diminished and disappeared, his demeanour became natural, the protrusion of the brain at both apertures persisted for a short time but speedily began to diminish, and on June 4th both had given way to depressions. The optic neuritis subsided and he was apparently quite well when he left the hospital on July 25th.

Eleven months later the patient came to show himself. The optic discs were normal. He had been quite well in every respect since he went out. He never suffered from headache, had never had anything in the nature of a fit, and in disposition and demeanour was just the same as before his injury. He had done his work as usual. The only inconvenience he had suffered from was a sensation in the back of the head, where he supposed the bullet to be, when he jumped from a height on to his feet, and once when he had been struck by a man in the face he dropped momentarily unconscious but recovered immediately and got up. Fresh skiagrams were taken and on comparing them with those taken when he was an in-patient it was seen that the bullet had changed its position. It now lay on, or close to, the tentorium, having gravitated vertically from one to two inches. This gravitation of the bullet was probably connected with the softened condition of the brain which we know must have been present at the time of the operation, but we must not forget that possibly an abscess might have formed quietly round the bullet and as its size increased the bullet, lying on its floor, might have descended. The absence of any indication of pressure upon the important structures in the vicinity of its present position make me believe, however, that the former interpretation of the fact is the correct one. The patient was last seen in July, 1905, two and a quarter years after the injury. He remained quite well. (*Note.*—The cartridge in this case was seven millimetres pin-fire. The bullet weighed 63 grains and the powder five and a half grains.)

THE PHYSICAL PHENOMENON.

There is a certain physical phenomenon which is so closely associated with the effects of bullet wounds that I will allude to it first. You may remember that in hydrostatics there is a law known as Pascal's which states that "pressure exerted upon a mass of liquid is transmitted undiminished in all directions, and acts with the same force on all equal surfaces, and in a direction at right angles to those surfaces." The interest that this law has for us depends upon the fact that the skull is completely filled with contents of various degrees of fluidity, whilst during life the

general sum of the fluidity is greater than after death. Thus, there is the cerebro-spinal fluid in the ventricles and in the subarachnoid space, the fluid in the lymphatics, and the blood in the vessels and venous sinuses, whilst the brain itself is a soft and viscous substance. The cranial contents do not constitute a uniform fluid, but we should expect Pascal's law to apply to them.

Now the consequences produced by a bullet crashing into the skull are often so remarkable that many experiments have been made to obtain a knowledge of their nature. In the first place, the results of firing a bullet at a flat brittle bone and into a soft substance like the brain are very different. The bone is pierced and the lateral displacement of its particles is very slight but the brain is thrown aside in all directions. The difference is due to the different degree of cohesiveness of the particles composing the two bodies, or, in other words, to the greater fluidity of the softer structure. Next, the importance of fluid contents in intensifying the effects of a bullet fired through a closed receptacle is shown by one of Kocher's experiments. Two identical tin canisters were filled with equal quantities of lint which in one was dry and in the other saturated with water. A bullet of moderate velocity fired through them simply perforated the dry one but caused the wet one to burst explosively. Kocher also filled a skull with water and found that a bullet fired through it caused bursting of the sutures. Very remarkable is the shattering that results when skulls that have been filled with water or with wax are treated in this way and if they are compared with others showing the effects of bullet wounds under normal conditions it is easy to appreciate that the variations presented are dependent, in part at least, upon the difference in the character of the contents. These facts will prepare you to accept the following statement as to the phenomena which are believed to occur when a bullet is fired through the brain. As soon as "the bullet enters the skull the slight primary rise of tension" caused by the depression of the bone at the point of impact "is instantly converted by the universal displacement (explosive effect) of the contents into a severe rise of pressure most marked upon the side of entry." This pressure acts upon such lines that it "will on meeting the rigid skull tend to burst it," and if it fails in that the force "will certainly be reflected on to the brain."

EFFECT UPON THE SKULL.

We are now in a position to consider the way the living skull is affected when penetrated or traversed by a bullet. If you should have the opportunity of examining a number of such injuries you will not fail to be struck by the great differences that exist. There are several factors that influence the results: 1. There is the size of the bullet. 2. There is its velocity. 3. There is the nature of the bullet; whether it is one that flattens out upon impact and in its enlarged form passes into the skull, or whether, like the modern rifle bullet, it is possessed of an outer case which prevents expansion and increases the penetrative power. In many of the pistol bullet injuries, which is the most usual form met with in civil practice, the bullet is small and the cartridge contains only a very small charge of powder, consequently the velocity is very slight. The momentum of the bullet is often so small that it may only be sufficient to carry it through the skull or for a certain distance into the brain. In such circumstances the injury to the skull is simply a clean-cut circular aperture in which, as is usual in depressed fractures, the inner table is broken away over a larger extent than the outer. This was the condition of affairs in the two cases I have related. A somewhat similar aperture may be made at the point of exit, as in the skull I have here, where the bullet retained sufficient force to knock out a circular piece of bone on the opposite side; but here, of course, the outer table was more extensively removed than the inner. The bullet, however, had exhausted its power and lay within the cranial cavity close to the counter fracture. But in other cases where the velocity is greater the explosive energy developed by the entrance of the bullet may produce truly remarkable consequences. In his Hunterian lectures[1] Mr. L. B. Rawling has figured a skull in which almost the whole calvarium had been separated by a bullet fired from a pistol held close to the right temporal region. More commonly there are fissure fractures radiating from both apertures of entrance and exit and these fissures correspond in their general direction with that of the bullet. Thus if the bullet takes a longitudinal course the fissures have an antero-posterior direction, but if it passes across from side to side the direction of the fissures is apt to be transverse and tends to run towards the base of the skull.[2] These fissures are spoken of as the indirect fractures produced by gunshot wounds in contradistinction to the direct fractures at the points of entrance and exit. It is these indirect fractures that become more pronounced as the increasing momentum of the bullet tends to produce greater explosive energy within the skull until very extensive comminution of the bone over a wide area may result. In Tilmann's Surgery, vol. ii., p. 44, there is an illustration showing the skull of a Russian soldier killed at Plevna in which this excessive comminution is well marked.

INJURY OF THE INTRACRANIAL CONTENTS.

Then there are the injuries that may be inflicted by the bullet and the splintered fragments of bone upon the intracranial contents. In the first case you will remember all the fragments lay superficial to the dura mater and in the second some were superficial to the dura mater, and others were imbedded in the contused and lacerated brain in the vicinity of the wound in that membrane. One or other of these conditions is the usual one, though sometimes a portion of bone may be carried to a greater depth along the track of the bullet. Partly in consequence of the force with which the bone fragments are carried on into the brain and partly as a result of the explosive energy developed by the entry of the bullet into its soft tissue the brain substance in the vicinity of the wound is often severely injured over an area considerably larger than the aperture of entry, and the contusion and laceration and the extravasation of blood that take place into it may reach to a considerable depth.

Hæmorrhage is another important complication. You will recollect that in the first case the bullet passed immediately behind the middle meningeal artery and the aperture made by the bullet and the groove for the artery were almost in contact on the disc removed by the trephine. And in the second case the longitudinal sinus or a large tributary vein was wounded in clipping away a blackened edge of the dura mater. If you consider for a moment the extensive blood-supply to the surface of the brain, the number and size of the venous sinuses, and the position of the middle

FIG. 1.

Specimen No. 76, Pathological Museum of the Medical School of the Leeds University. From a man who never recovered consciousness and who died a few hours after the injury. (Under the care of Mr. W. H. Brown.)

meningeal artery in a region so frequently selected for suicidal wounds, you will not wonder that profuse hæmorrhage from a bullet wound is by no means uncommon. But not only may blood escape externally but it may spread over the surface of the convolutions below the dura mater, especially if it come from the pial vessels. Then look at this brain taken from the skull I have just shown you (Fig. 1). There is a laceration of the dura mater over the occipital lobe opposite the spot where the bullet was

[1] THE LANCET, April 9th, 1904, p. 977.

[2] Vide Hutchinson's Illustrations of Clinical Surgery, plates 33 and 38.

arrested after traversing the brain. It is easy to conceive that if a slightly different direction had been given to the bullet, either the longitudinal, the lateral, or possibly the straight sinus might have been torn, and then a hæmorrhage would have occurred which could not have escaped externally. So that in these cases there may be both obvious hæmorrhage from the wound of entrance and concealed hæmorrhage at some distance from it. This is illustrated by the following history attached to a specimen (No. 830) in the Museum of the Royal College of Surgeons of England. "From a gentleman, aged 35. The injury was suicidal and death almost instantaneous. The bullet ascended to the vertex dividing the superior longitudinal sinus, then passed downwards between the dura mater and the cranium and lodged behind the left temporal bone, lacerating the lateral sinus. Great effusion of blood from both sinuses. The fragments of bone were found in the middle of the right cerebral hemisphere." The specimen, which is a portion of the right parietal bone, suggests that the middle meningeal artery also must have been wounded or had a very narrow escape.

THE BULLET AS A CAUSE OF SEPSIS.

A great many bullet wounds of the brain prove rapidly fatal either from the initial shock to the brain or from the hæmorrhage that follows and compresses it, and it can only be in very exceptional instances that surgery can be of any material use at this stage. But if the individual should survive these dangers he still has to reckon with the possibilities of sepsis and in preventing or combating these the surgeon is by no means helpless. The risks of sepsis in these cases are such as are common to all compound depressed fractures of the skull and do not call for any special comment. But the bullet is a special feature and its relation to the question of sepsis is of considerable moment and of much interest.

It has been taught that the heat developed in the bullet when it strikes the body is sufficient to render it aseptic, but that idea is disproved by the fact that "a bullet deformed by impact may inclose a hair or a piece of wood without these being in the least degree altered by heat." On the other hand, its smooth surface, the heat developed at the moment of firing and from the friction in the barrel, as well as the effect of the friction of the air in its course, are all in favour of rendering it surgically clean at the moment when it enters the body. More definite information is to be found in a work by Phelps of New York, who has analysed 136 cases which represent "the almost entire published experience of English, Colonial, and American practitioners since the adoption of thorough aseptic methods in surgery." In 41 the innocence of the stranded bullet had apparently been claimed, but 25 of these were of questionable character or unverified by sufficient lapse of time. His summary of the remaining 16 and five others of similar import but in which recovery was not claimed amounts to this. In 12 cases there was sepsis from abscess or necrosis of cerebral tissue directly related to retention of foreign bodies. In eight of these it was dependent solely upon the bullet which, with one exception, was at a distance from the wound of entrance, and in all the symptoms persisted from the time of the injury. In four the brain was uninjured and there were no symptoms during periods of observation dating from one and a half to six years. In four epilepsy developed subsequently at various periods (several months, 13 months, four years, 15 years). One case he omitted because the signs of disturbance were not connected with changes at the point of lodgment of the bullet. He adds: "There is probably no authenticated case of recent Anglo-American record in which a bullet left in the brain substance has failed to work mischief, nor has the evil been often long procrastinated." And he formulates his conclusions as follows: "1. The bullet left by necessity or choice within the cranial cavity is usually septic and necrotic changes ensue with constitutional infection. 2. The bullet when aseptic may become encysted and may then be harmless, or more probably may be a source of dural or cerebral irritation at a perhaps distant period."[3] Though it must be admitted that these conclusions seem justified by the facts which Phelps quotes, yet they certainly present a more gloomy impression than that which obtains on this side of the Atlantic, and I cannot help feeling that many cases which would have tended to modify them have not been recorded because of their apparent incompleteness and possibly the absence of specially interesting features.[4]

There can, however, be no question that the presence of a bullet within the brain, even though it may cause no symptoms, is for some time a possible source of grave danger and must always introduce a very considerable element of doubt and uncertainty into the patient's future. It is, therefore, a matter of the greatest importance that it should be removed whenever it can be done before it has time to set up dangerous changes. But though its removal may be quite easy in some cases there are others in which the surgeon will decline to interfere from a well-justified feeling that the certainty of the mischief he would do outweighs the uncertain danger to which the patient will be exposed if left alone.

HOW THE EXPLOSIVE FORCE KILLS.

Another glance at this brain (Fig. 1) will show you the track of the bullet as it passes from the front to the back of the right hemisphere. It is more or less occluded with clot and the cerebral tissue is deeply discoloured by blood for half an inch all round it. A straight path is to be expected but it is not a certainty. The bullet may be deflected at its entrance, or on the opposite side of the skull if it fails to pass out, but in the cerebral tissue its course is usually straight unless it should chance to be turned aside by the falx or the tentorium. These structures, however, are more frequently pierced. Consequently this practical point should be remembered, that if the "wound can be traced directly inwards for an inch or more it is probable that the bullet has gone straight onwards as far as the opposite dural wall unless it has stopped short on the way from want of force." But this very obvious track of destruction traversing the hemisphere was not in itself a sufficient explanation of the rapidity with which death resulted, and you will realise this better when you look at this other specimen in which a track caused by an iron rod traverses the brain from base to vertex (Fig. 2). For several days there was no suspicion

FIG. 2.

Specimen No. 77, Pathological Museum of the Medical School of the Leeds University. From a boy whose brain was transfixed by an iron rod which entered through the cheek. He was not brought for treatment for several days and death occurred unexpectedly about a week later.

that the boy from whom it was taken had received more than a flesh wound. For the week subsequently to that period he was in the infirmary and there was such an absence of symptoms that an able house surgeon asked if he might be made an out-patient as he appeared to be occupying a bed unnecessarily. The next morning he had convulsions and died in half an hour. The explanation of the difference in the manner of death in these two cases is to be sought in the physical phenomenon which I endeavoured to explain at

[3] Traumatic Injuries of the Brain and its Membranes, pp. 361-366.

[4] Mr. J. A. MacDougall records incidentally in a paper on the Use of Morphine in Cerebral Injury the case of a young woman in which a bullet traversed the right frontal lobe. It was not removed but some three to four years later she was in perfect health, married, and had suffered no harm from the presence of the bullet. THE LANCET, June 25th, 1904, p. 1786.

the outset of my remarks. The momentum of the bullet produced a violent explosive effect. The momentum of the rod was too slight to do so.

Now how does this explosive force tend to produce death? Remember that it is propagated through the cerebral tissues in all directions against the hard and unyielding skull, not only towards the vertex, but also towards the base, and that if it is insufficient to burst open the cranium it will be reflected on to the brain. In such cases the surface of the brain, both at the base and elsewhere, shows numerous points of bruising as a result of the forcible contact produced between it and the bone. Moreover, in the floor of the fourth ventricle are two very important nerve centres—the centre for the respiratory movements and the nucleus of the vagus, the nerve which is able to inhibit the action of the heart. These ganglia suffer with the rest of the brain from the general eccentric shock which follows the entry of the bullet. But they are further exposed to an additional pressure which acts simultaneously with the first. The lateral and third ventricles being distended with fluid share in the increased intracranial tension and the pressure to which their contents are exposed is transmitted through the liter to the fluid in the fourth ventricle and intensifies the effect produced upon the medullary centres.

During your work in the wards you will have various opportunities of observing the effect of intracranial pressure upon the respiratory and cardio-inhibitory centres. It is the respiratory centre that fails first and when death is taking place the heart will often continue to beat for some time after all respiratory movements have ceased. So Horsley found that when a bullet was fired into the cranial cavity complete arrest of respiration followed. But the heart continued to beat and when artificial respiration was performed the animal recovered from what would otherwise have been a fatal arrest. But if this immediate shock to the respiratory centre does not prove fatal another rise of intracranial pressure very frequently follows. This second increase of tension is due to hæmorrhage taking place within the skull—the concealed hæmorrhage to which I have already referred—and as the blood accumulates the respiratory centre is once more paralysed, the vagus centre is irritated, the heart's action is slowed, and death results.

TREATMENT.

We have now to discuss what can be done for these cases. There will always be a certain proportion, and that not a small one, which obviously have only so short a time to live that to attempt any operative procedure would be inhuman. But when these are eliminated it can only be a very exceptional case in which it will not be the surgeon's duty to interfere. This interference will take the form of an exploratory operation upon the wound of entrance. It will have for its object the removal of all loose fragments of bone lying upon the dura mater or in the brain within reach and it will call for the formation of a sufficient aperture in the skull to insure thoroughness in the search. It is hardly necessary to add that every effort must be made to render the wound perfectly aseptic. If the dura mater is perforated it must be incised and the brain inspected. Should the brain be much lacerated and disintegrated the fragments should be felt for by the finger in the broken-up tissue, and whilst this is being done the bullet itself may possibly be seen or felt and removed. But if when the brain is exposed the aperture of the bullet track is seen, then it is safer to use a probe rather than the finger. So far there is no difference of opinion as to the course that ought to be pursued. The wound of entrance has to be treated just as any other compound punctured or depressed fracture of the skull, and should there be a wound of exit that also has to be explored in like manner. But where the bullet has lodged within the brain and is not close to the surface there is a divergence of opinion as to what is the best practice—whether to search for the bullet or to leave it alone till further symptoms arise.

You will gather from what has been said that the trend of opinion is becoming more favourable to an attempt to find and to remove the bullet, and you should know how this is done. The search for the bullet is made with a special probe, and if it is successful the bullet is seized with suitable forceps and withdrawn along its track. If this is carefully managed there is not necessarily any additional laceration of the brain. But if the track, which is nearly always straight, can be traced to a considerable depth without result it may be right to continue the search through an opening made on the opposite side of the skull, especially if the bullet has been localised by the x rays. This counter operation is only suitable under certain conditions and is distinctly contra-indicated in others. For instance, it might be performed where the track was found to pass through the central or upper regions of the brain towards the vault, or if it could be traced deep into the opposite hemisphere, but it would be unwise to attempt it if the course of the bullet was uncertain or if it had tracked towards the base.

Now the probe to be used is important. There are various probes specially designed for use in bullet wounds but the one designed by Fluhrer is that most suitable where the brain is concerned. Fluhrer's probe is 12 inches long and is made of aluminium. Its ends are blunt and bulbous. Owing to its lightness it is supposed that it will find its way along the track of the bullet without making a false passage *if the head is so placed that the track is vertical* and if the probe is allowed to penetrate by its own weight. But, as a matter of fact, the track is likely to be filled with coagulated blood and disintegrated tissue and some gentle force is required to penetrate it. When the bullet is felt the portion of the probe remaining outside the wound is measured and so the depth of the bullet from the surface is ascertained. When it is near the wound of entrance it is then extracted through it. Should it have passed so far towards the opposite side of the brain that it may be thought desirable to attempt its removal through a counter opening the method of doing it is the following. The point for counter trephining being determined and the skull opened the probe is pushed on past the bullet just to the counter opening. The protruding part of the probe is again measured and the distance of the bullet from the counter opening can be reckoned. Two strands of silk are now attached to the probe and are carried through the wound as the probe is withdrawn. By one of these a No. 9 French gum elastic catheter made rigid by a stylet or a long probe with an eye is drawn through the track to be used as a guide. A suitable pair of forceps is now tethered to the catheter by a loop of silk round one of its arms and the bullet is searched for at its known depth, first above, then below, then on either side. After each attempt the forceps should be withdrawn and reintroduced and not swept round the catheter. The object of this is to avoid unnecessary injury to the brain. When the bullet has been found and removed the second strand of silk may be used to draw a drainage-tube through the wound if it be thought wise to do so.

Before I conclude let me remind you of the lesson to be learnt from the second case. The rapid recovery that followed the relief of the intracranial tension was remarkable. Whether the patient would have recovered if he had been left alone or whether the condition which gave rise to the increased pressure would have ended in abscess it is impossible now to say, but in connexion with this latter hypothesis do not forget that there are two causes that induce suppuration—one is the presence of micro-organisms, the other is continued irritation. Either of these causes might have been present but the operation could only have given relief to the latter, and that by diminishing the pressure and the pulsating impact of the surrounding inflamed brain tissue against the bullet.

References.—Valuable help has been obtained from the following: Sir Victor Horsley: On the Destructive Effect of Projectiles, Royal Institution of Great Britain, lecture, April 6th, 1894. Kramer and Horsley: On the Effects produced on the Circulation and Respiration by Gunshot Injuries of the Cerebral Hemispheres, Proceedings of the Royal Society, vol. iv., p. 278, 1894. Phelps: Traumatic Injuries of the Brain and its Membranes. Keen and White: Text-book of Surgery, p. 514. Fleet-Surgeon C. M. Beadnell's Exhibits at the British Medical Association Museum, Leicester meeting, 1905.

BRISTOL ROYAL INFIRMARY.—The annual meeting of the subscribers to the Bristol Royal Infirmary was held on Feb. 14th under the presidency of Sir George White. The medical report stated that 3762 in-patients had been admitted during 1905, as compared with 3408 in 1904. The out-patients numbered 42,615, as compared with 41,453 in the previous year. The financial statement showed that the ordinary expenditure amounted to £15,637 and the total receipts for the year (excluding the £50,000 fund) were £21,471. The extraordinary expenditure of £5784 included the enlargement, &c., of the nurses' home, which now accommodates 120 nurses. A favourable balance of £50 remained at the end of the year. Sir George White was re-elected president. It was stated that the sum of £43,577 has now been received towards the £50,000 required for rendering the infirmary thoroughly up to modern requirements.

THE DIAGNOSIS AND TREATMENT OF TUBERCULOUS PLEURISY.[1]

BY SIDNEY MARTIN, M.D. LOND., F.R.C.P. LOND., F.R.S.,

PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

TUBERCULOSIS, as a disease, has certain features which it is very necessary to bear in mind in discussing the subject of tuberculous pleurisy. Thus it may be acute in its onset, or slow and insidious. It tends to recovery and the lesion during the process leads to thickening of the part or organ affected and to contraction or scarring. The healing process is a slow one and is essentially associated with fibrosis of the part. When the seat of the lesion is completely fibroid it is not infective—i.e., it contains no active tubercle bacilli. But before this stage is reached there are still foci in the fibrous tissue which contain living bacilli and so may be a source of a fresh outbreak of the disease. In the consideration of tuberculous pleurisy this fact must be borne in mind as well as the final effect of a severe pleurisy on the lung in producing adhesion and thickening of the pleura, in producing contraction of the lung tissue, and in causing a local bronchiectasis at the seat of the adherent and thickened pleura. Acute tuberculous pleurisy is not infrequently associated with a simultaneous outbreak of tuberculosis of the lung tissue and, as is well known, is a common occurrence in cases of progressing pulmonary tuberculosis. The cases, however, which will be more particularly discussed are those which clinically are considered as primary and acute tuberculous pleurisy, with or without effusion. Primary pleurisy may be caused by many different kinds of infective agents—by the pneumococcus, streptococcus, staphylococcus, and tubercle bacillus. These are the commonest causes. Secondary pleurisy may arise by direct extension from an infective focus in or near the chest wall or by metastasis, as in septicæmia, pyæmia, and typhoid fever. These secondary cases are excluded from the present discussion.

A case of primary pleurisy which comes under observation may in the large majority of cases be due either to the pneumococcus, streptococcus, or staphylococcus on the one hand, or, on the other hand, to the tubercle bacillus—i.e., it is *tuberculous* or *non-tuberculous*. This division of acute primary pleurisy is of the highest importance clinically and to be constantly borne in mind during the watching and treatment of an individual case. The diagnosis as to whether the disease is tuberculous or not is of great importance not only in estimating the prognosis but in the treatment of the case. Acute non-tuberculous pleurisy, with or without effusion, almost invariably gets well unless it leads to the formation of empyema. In tuberculous pleurisy the course of the disease is very varied and an accurate prognosis in the acute stage of the disease is impossible. The difficulty of diagnosis between the two kinds of cases may be very great; both tuberculous and non-tuberculous pleurisy may in the initial stages be shown by the same general symptoms of pyrexia, dyspnœa, and dry cough, with stitch in the side, and the same physical signs of a friction rub at the base of the lung, or of the presence of a large amount of fluid in the pleura. In many cases in the early acute stages no diagnosis as to the nature of pleurisy is possible by a careful examination of the history of the illness, of the symptoms present, or of the physical signs in the chest. The diagnosis has to be made by a study (1) of the mode of onset of the disease; (2) of the course of the disease, including an examination of the fluid poured out; and (3) of the after-effects of the disease on the chest wall and lung.

1. *Mode of onset of the disease.*—The acute onset of pleurisy, as shown by more or less sudden illness and pain in the side, with dry cough and pyrexia and with dyspnœa, if the effusion into the pleura is rapidly poured out, may be observed in both tuberculous and non-tuberculous pleurisy. But in certain cases the onset of the disease indicates its tuberculous origin. (*a*) In one class the disease begins insidiously with pyrexia as a rule but with no symptoms or even physical signs referable to the chest and lungs; after a varying period—it may be some week or two or even longer—there are found well-marked signs of pleural effusion. These cases are called "latent" pleural effusion. They are almost invariably tuberculous. In many cases before the effusion of liquid, at the time when the patient shows pyrexia but no symptoms referable to the lungs, the site of disease may be indicated by deficiency in movement on one side of the chest but not usually by any deficiency of resonance or by any marked alteration of the breath sounds or by crepitations. I regard this unilateral deficiency of movement as a valuable sign in the early diagnosis of the site of disease in these cases. (*b*) In another class of cases the tuberculous nature of the disease is indicated by the history (or the observation) of a similar attack of pleurisy which has occurred a few weeks or even months before, either on the same side (as is usual) or on the other. This "recurrent" pleurisy is almost invariably a sign of the tuberculous nature of the disease.

2 *and* 3. *Course of the disease and its after effects on the chest wall and lung.*—Although the mode of onset may, in the directions indicated, be a valuable help in the diagnosis of the cause of the pleurisy, it is mainly by observing the course of the disease and its after-effects that an accurate knowledge may be obtained of its tuberculous or non-tuberculous nature. Excluding from the discussion cases of empyema, the course of non-tuberculous, non-purulent pleurisy with or without effusion is towards getting well. The disease lasts a varying time. Dry pleurisy may run only a short course with but slight pyrexia and disappears without leaving any appreciable deformity of the chest wall. When effusion occurs in non-tuberculous cases the duration of the disease is longer; the pyrexia lasts for 10, 14, or even 28 days. The fluid is either absorbed or if removed by paracentesis does not as a rule accumulate to any great extent again. Two tappings are rarely if ever necessary in non-tuberculous pleural effusion. The deformity left by even a large effusion is not great; in children it may be very slight and, indeed, unobservable after a few weeks convalescence. In adults, although there may be for some time a deficiency of movement of the affected side and some slight diminution in intensity of the breath sounds, there is no permanent and marked retraction of the side or lung, and recovery of the side may be to all intents and purposes complete. The fluid removed in non-tuberculous pleural effusion, as a rule, coagulates spontaneously and by centrifugalising about 100 cubic centimetres of it and utilising the deposit for examination, either microscopically or by culture, evidence of the presence of the pneumococcus, staphylococcus, or streptococcus may be obtained. Such fluids are, in my experience, never sterile if the liquid is removed in the acute stage of the disease, and the discovery of one or other of these bacteria is an important element in the diagnosis of the disease.

These results are in contrast in many respects to those observed in tuberculous pleurisy with or without effusion, as in this condition the disease is longer in duration in its acute stage, slower in recovery, and during the process of healing more frequently than not tends to well-marked deformity of the chest with contraction of the lung—i.e., to "pleurisy with retraction." Cases of tuberculous pleurisy do not always lead to effusion into the pleura. Two classes belonging to this category may be distinguished, according to the extent and duration of the disease. In the slighter cases the disease commences with pyrexia and friction sound, usually in the lower part of the axilla. The pyrexia may not last long but in some cases it is observed for a month or more, the type of pyrexia being that of an evening rise and a morning fall. It is during this long pyrexia that, without any signs of affection of the lung tissue, changes are observed taking place in the pleura; there is increasing dulness with deficiency of movement and retraction of the chest wall; weak breath sounds are heard but no crepitations; the friction sound has disappeared. The insertion of a needle into the diseased area shows that no fluid is present; the dulness is due to an increasing thickening or fibrosis of the pleura caused by the tuberculous process. More severe cases of this kind are seen in which with prolonged pyrexia for weeks or months there is a persistence of the serious signs of disease of the pleura; but there is no effusion, or only to a slight extent. Recovery takes place in such cases; or subacute general tuberculosis may occur or the signs of a chronic pulmonary tuberculosis slowly make their appearance. In nearly all such cases for the purposes of diagnosis it is necessary to puncture the pleura; not only to exclude

[1] Delivered before the Medical Society of London on Feb. 26th, 1906.

the presence of pus but to determine whether an effusion is present or not.

Cases of tuberculous pleurisy with effusion frequently give rise to much difficulty in the diagnosis. The general symptoms may be the same as in non-tuberculous cases, but the diagnosis is to be made by attention to several points: 1. The pyrexia in tuberculous cases is frequently much more prolonged and, even in the absence of empyema, will last weeks or even months. This persistence of the pyrexia in the absence of suppuration or other complication is a sign of the tuberculous nature of the case. 2. The effusion into the pleura, when once removed by paracentesis, tends in many cases to accumulate again, requiring a second or third paracentesis, or even more, for the relief of symptoms. If repeated tapping of the pleura is required in the class of case under consideration the disease is in the great majority of cases tuberculous. Its necessity is explained by the firm adhesions formed round the edge of the effusion during the tuberculous process, so that the area of pleura affected becomes a sac which cannot disappear because the lung is prevented from expanding by adhesions. 3. The fluid removed in cases of tuberculous pleural effusion sometimes coagulates spontaneously; if, however, the disease has lasted some time or has become chronic coagulation may be slight or absent. In some cases much may be learnt by an examination of the fluid. I will not say that the effusion in a tuberculous case never contains the bacteria which are the cause of non-tuberculous primary pleurisy, but if these and other bacteria are shown to be absent by cultivating from the deposit of the centrifugalised deposit (100 cubic centimetres)—i.e., if the fluid is found to be sterile by cultivation on ordinary media—the disease is tuberculous. In some cases microscopical examination and inoculation of the deposit of the centrifugalised fluid are important. For this purpose it is best to use from 100 to 200 cubic centimetres of the fluid and to centrifugalise till all the solid matter is at the bottom of the tube. In the lowest layer is seen the blood which has got into the fluid during paracentesis, above this is a layer which is in some cases creamy white and is composed of pus cells, while in other cases no white layer is seen but a flocculent layer consisting of a few pus cells and cells of the pleura. The white layer (composed of pus) not infrequently shows the presence of tubercle bacilli on microscopical examination. If such an examination fails to reveal the presence of the bacilli the deposit is to be inoculated either intraperitoneally or subcutaneously into a guinea-pig. The result is often positive, even when no tubercle bacilli are discovered in two or three preparations of the deposit. This examination of the fluid is not solely of pathological interest. It may be the only way in which at that period of the disease the diagnosis may be made as to whether the process is a tuberculous one or not. In some cases, few in number, the tuberculous nature of the pleurisy is recognised by the appearance of signs of peritonitis. It is not common for a primary tuberculous pleurisy to spread to the peritoneum; the occurrence during life may be recognised by the gradual appearance of tumidity of the abdomen or by the presence of a small amount of fluid in the peritoneum. It is much more usual for the tuberculous disease either to spread from the pleura to the lungs or to be associated with disease of the lungs. A history of pleurisy, with or without effusion, is common in cases presenting themselves with signs of tuberculosis at one or other apex, usually on the same side as the antecedent pleurisy. But the cases I want more particularly to refer to are those which come under observation with very evident signs and prominent symptoms of acute pleural effusion which have expectoration containing tubercle bacilli and in which, as may be gathered from the history, the period of commencement of disease of the pleura and of the lung was identical. Clinically such cases may be considered as cases of pleural effusion with expectoration. They are not all tuberculous, as such a condition may be caused both by the pneumococcus and by the streptococcus. The diagnosis is readily made by an examination of the sputum, as, if tuberculous, the sputum invariably contains tubercle bacilli. The after effects of the tuberculous pleurisy on the chest wall and the lung are important points to observe for the diagnosis, as well as prognosis, of the case.

One class of case need not be discussed at length—viz., those cases which, commencing with a dry pleurisy or pleural effusion, terminate after a period of pyrexia of varying duration in subacute or chronic pulmonary tuberculosis. More important from the present point of view are those cases which get well but leave their mark on the chest wall and on the air-containing capacity of the lung. No doubt there are cases of slight tuberculous pleurisy which heal without any serious damage to the chest wall or lung. But other cases, in which there is either that great thickening of the pleura to which reference has already been made or in which there has been a large effusion, show for months, and, indeed, for years, a damage to the part affected. The chief physical signs are well-marked retraction of the side (chiefly the base) and a deficiency in the entrance of air, chiefly into the lower lobe of the lung. Deficiency of resonance also persists over this area, but is not great, owing no doubt to the surrounding compensatory emphysema. In some cases the signs of damage are most severe; inasmuch as after a time, signs of dilatation of bronchi may be evidenced in the appearance of bronchial or cavernous breathing and of dry crepitation. These signs may persist, even though there is every evidence of physical well-being and there is no expectoration.

Treatment.—In the acute stage, beyond the ordinary measures of rest in bed and good nursing, the main point that will arise for decision is the question of removing the fluid from the chest. There does not appear to be any greater danger in removing the fluid in tuberculous cases than in the non-tuberculous and, indeed, there may be a definite reason in advising the removal of the fluid owing to the permanent adhesions that are liable to be formed in tuberculous cases. Apart, therefore, from any urgency for paracentesis such as may occur when there is respiratory distress it is not wise to allow a large quantity of fluid to remain in the chest for too long a time. If the fluid, therefore, is large in quantity and shows no sign of absorption it had better be removed. Cases which run a prolonged course with pyrexia and perhaps no urgent symptoms are best treated by lying in the open air, properly wrapped up and well fed. After the pyrexia has ceased all such patients require a prolonged course of treatment in the open air in order to help the healing of the tuberculous lesion. If this were done more systematically it would perhaps to a great extent prevent a second attack of tuberculosis which so frequently affects the lung tissue and leads to either a very chronic illness or more immediately to death.

Mansfield-street, W.

A NEW METHOD FOR THE PRODUCTION OF ULTRA-VIOLET RAYS AND OTHER RAYS BY LOW-TENSION HIGH-FREQUENCY CURRENTS.

BY J. CUNNINGHAM BOWIE, M.B., C.M. GLASG., D.P.H. GLASG.

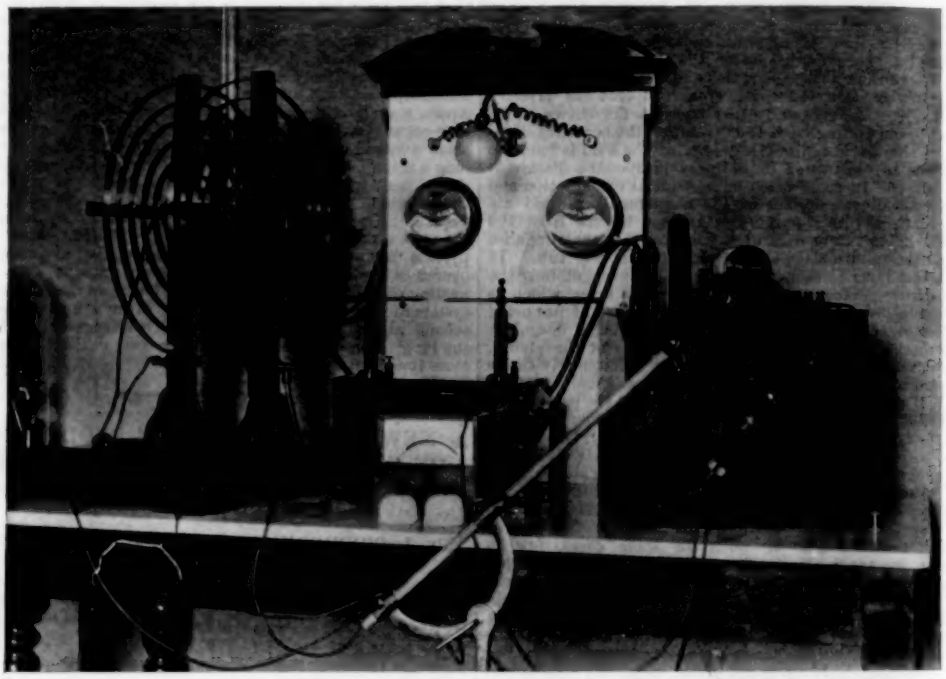
ULTRA-VIOLET rays, actinic rays, Finsen rays, chemical active, or purifying rays of the sun,—under these various terms these rays are at present known and although they have many characteristics similar to their nearest affinities—namely, x rays and Becquerel rays—they are distinct from, and in several ways may be regarded as superior to, them. Hitherto the great difficulties experienced in the production and handling of them have greatly hindered their application to practical therapeutics and although it is not my intention in this communication to deal largely with this aspect of the subject it may be said as far as ultra-violet rays have been tried in therapeutics it has been found that they possess qualities of a curative power in certain diseases much superior to the better known x rays. Although the subject will be gone into more in detail further on, it may be sufficient at this stage to say in a word that the difficulties referred to consist chiefly of the impossibility hitherto of getting these invisible rays to penetrate glass, thus making it impracticable to liberate them in any form of glass tube or lamps, such as is the case with x rays; also the difficulty of freeing them from the infra-red or heat rays. These and other hindrances I venture to claim to have removed and thus effected what may be deemed practically a cold tractable ray. To produce these ultra-violet rays in the manner which will be described below it is essential, in order to secure the volume and purity

of the ray, &c., that *low-tension* high-frequency currents be employed. Besides there are other advantages resulting from low-tension currents—namely, the great magnitude of current which can be used with perfect safety; and the volume of ray produced is in direct ratio to the amount of current used. It is not 12 years since Tesla and Elihu Thomson introduced high-frequency currents, and later d'Arsonval applied them therapeutically. All these scientists employed *high* tension, consequently only a comparatively small current can be safely passed through the body. In 1903 I first introduced *low-tension* high-frequency currents[1] when applied to the body and pointed out the advantages of these currents in the treatment of phthisis pulmonalis. Under this system experiments showed me that much larger currents could be safely passed through the body if the periodicity was sufficiently increased. Working upon these data I had constructed for me a second machine which delivered five ampères of electricity from the secondary helix with a periodicity of 60,000,000 per minute. With this machine I found I could not only place myself safely in circuit but pass three and a half ampères of the current with perfect safety through the body and remain under its influence for 20 minutes or more without any ill-effect.

While working with low-tension currents of this magnitude I thought of the possibility of utilising them for the production of rays in vacuum tubes. These experiments induced me to have constructed a third machine which would deliver ten ampères at 80 volts with a periodicity of 360,000,000 per second. Again I found that with a low-tension current of this strength it was not only possible to place oneself in circuit but that from six to seven ampères of the current could be passed through the body without any painful or disagreeable sensation.

Having thus proved the safety of handling these currents I used them for the production of rays. I found that with a current of this periodicity the rays produced were of greater volume and purity. By using vacuum tubes and other apparatus of special construction the whole of the current could virtually be converted into rays; and that, too, at a comparatively small cost of production. With this machine it is possible so to adjust it that no less that six ray tubes can be operated simultaneously. By means of volt and ampère meters in the primary circuit, and ampère meter in the secondary, the current required to produce these rays can be measured, while experiments showed that the wastage of the current is practically *nil*.

One of the special advantages accruing from using these low-tension currents is that great magnitude of current can be used with safety. If desired the same machine can be used to produce high-tension currents. In passing it may be noted that when the current from the machine is transformed into *medium* tension x ray photographs can be taken without requiring rectifiers. At the present time the ultra-violet rays are produced by an open arc. This results from the premiss that the ultra-violet rays do not pass through glass. This arc system was introduced by the discoverer, Dr. Finsen, and all the subsequent apparatus, such as those of Dr. Marshall-Wood, Dr. Bang, Dr. Leslie Miller, Dr. Strubels, and Dr. Lortet-Genoud (modified in the London Hospital), are founded on this principle.



The stand is seen in front of the table, and the vacuum tube through which the ultra violet ray is produced is in the centre of the case of the machine which contains the transformer, condenser, &c. The stand can be moved to any position in order to apply to the patient.

The amount of ultra-violet rays obtained by this *open* method is very small in proportion to the current used. This is equally so when the arc is wrought from an electro-static discharge of a condenser. Apart from the difficulty which is experienced in keeping the arc cool, it is not possible to handle the apparatus with perfect safety; besides, the noise of the arc is somewhat a drawback. Again, before the lamp can be brought into contact with the body it must be insulated. In this mode of production it is not possible, with this open arc system, so to free the ultra-violet rays from the heat rays so as to make their application to the body for any length of time really practicable. To overcome this heat difficulty various devices have been resorted to, such as the employment of ice, current of water, &c., with much discomfort to the patient and difficulty to the operator.

With one exception all the above devices are worked upon the *high*-tension system, with no means to vary the capacity. The cost of production is out of all proportion to the ultra-violet rays produced. Considering

[1] THE LANCET, May 2nd (p. 1247) and Oct. 31st, 1903 (p. 1224).

if it were possible to overcome some or all of these disadvantages, I had constructed for me various tubes and apparatus, of glass and other materials. Of glass tubes I found one of the following dimensions to be very suitable for general purposes but they may be made of various sizes to suit special requirements—viz., nine inches long by three in diameter; the tube gradually tapers towards one extremity. The end is fitted with a metallic cap, to which is fitted the terminal and passing inward to a distance of one-third of the tube is the electrode, to end in the internal cathode (also anti-cathode). The latter is a disc of iron, and although other metals may be employed I have hitherto obtained the best results by using iron. In this form the body of the tube is encased in a metallic cylinder—the external anti-cathode (also cathode) which likewise carries its terminal. Interposed between the cylinder and tube is a porous material which can be kept cool for the purpose of absorbing any heat. On account of the small amount of heat rays present the free end of the tube may be fitted with a lens or lenses for concentrating the rays. The vacuum tube is connected with the secondary helix of the machine and can be approximated by a screw to the primary helix. The working of the tube is as follows. Previously to turning on the current the secondary helix is placed at its furthest point from the primary and the condenser of the machine is raised so that the machine is working at its lowest capacity. The current is turned on and the tube glows. It may be remarked here that so sensitive is the tube that when *in situ*, and placed 12 feet from *another* machine which is working, the tube glows by induction. To obtain the greatest volume of ultra-violet rays the secondary helix is gradually approached towards the primary one, while the condenser is lowered to its greatest depth or capacity. The tube glows with great intensity and silently. From the internal cathode (also anti-cathode) is seen a corona of luminous points, while more distant from the corona it assumes a pale violet or whitish-blue colour which occupies the whole tube. These are the ordinary cathode and anti-cathode rays of Lenard. Directly through the glass of the free end of the tube emerge the invisible ultra-violet rays. This radiation answers to all the known tests for ultra-violet rays. The tube when in use can be held in the hand or adjusted to a stand. It may be of interest to remark in this place that when the tube is worked with *high tension*, it also takes the place of a rectifier and can be handled with safety. This is of considerable importance when the ordinary x rays are wanted, although it has to be noted that much better results can be obtained by the employment of *low tension*.

Owing to the rays being generated in a tube they can be sent directly or by reflection into a cavity. A breezy or tingling sensation is felt when the rays strike the skin, yet they do not produce subsequent dermatitis. These rays are highly bactericidal. The ultra-violet rays answer to the following tests. The following fluorescences are given: barium platino-cyanide—intense green (it should be noted that the rays can be projected 30 feet and then pass through a three-quarter inch glass lens giving this green fluorescence); solution of quinine, blue; sulphate of quinine, acidulated with few drops of acetic acid, intense blue; solution of æsculin, peacock blue; uranium fluoride, green; and calcium tungstate, greenish-yellow. During the working of the tube the atmosphere becomes pungent with ozone. Amongst the physical tests are the following: these rays can be reflected, refracted, and polarised. They are more actinic than the x rays and will discharge a negatively electrified body. (The Roentgen rays discharge a positive or negatively electrified body.) They can penetrate five sheets of notepaper and pass through mica. When impinging on the fluoroscope the rays can be drawn through it by touching the fluoroscope with the finger.

Although experience has shown the superiority of the ultra-violet rays in many points to the better known x rays, some of which points have been mentioned in this article, and especially their higher bactericidal powers, also their freedom from a subsequent dermatitis, still hitherto the difficulties of producing a pure ultra-violet ray, freed from the red or heat rays, have probably greatly hindered their extended trial and application. If I have succeeded by the above means in producing the ultra-violet rays in at least as convenient and tractable a form as the x rays it may lead to more extensive use of them. From the ultra-violet rays, the Becquerel rays, and the x rays one arrives at extremely short waves, and from their place on the spectroscope they naturally point the way to the radio-active bodies as their nearest affinities.

Cardiff.

SOME POINTS IN THE PROGNOSIS AND TREATMENT OF CROUPOUS PNEUMONIA.[1]

BY CHARLES H. CATTLE, M.D., M.R.C.P. LOND.,
HONORARY PHYSICIAN TO THE NOTTINGHAM GENERAL HOSPITAL AND TO THE SHERWOOD FOREST SANATORIUM FOR CONSUMPTION.

I BEG to thank the members of this society for the honour of addressing you, which has been brought about by your President, my old friend, Dr. John Macdonald. Pneumonia has been called the "friend of the aged,"[2] because it puts an end to life with comparatively little suffering after a man's work is done, when "superfluous lags the veteran on the stage"; while at the other extreme of life it removes a certain number of weaklings who stand small chance of ever becoming useful members of society. If this were all, one might be tempted to look on the pneumococcus as the benefactor of the human race, but the pity of it is, the microbe, in alliance with our fickle climatic conditions, is responsible for the sacrifice of many very valuable lives at the most effective period of their career. If pulmonary tuberculosis cuts short the promise of many a young adult life, so pneumonia claims its numerous victims at the period of maturity and removes many a one who can be ill spared by the home or by society.

Before going into detail as to treatment let us look at a few general considerations which, well-known to us as they are, must nevertheless be always borne in mind in guiding our prognosis and treatment.

Nature.—By pneumonia for our present purpose we understand an acute illness, generally characterised by definite physical signs in the lungs, suddenly attacking persons in health. We shall not deal except incidentally with pneumonia complicating alcoholism, Bright's disease, and other chronic asthenic disorders, or the specific diseases, such as typhoid fever and influenza. We need not discuss at length whether pneumonia is a local or a general disease. It is undoubtedly a general disease in the same sense as tuberculosis—that is to say, a disease which, although localised in the lungs, is capable of being generalised. High authorities like Professor W. Osler[3] and others definitely classify pneumonia among the specific infectious diseases. A pneumococcus septicæmia with asthenic symptoms resembling typhoid fever has been described. In such cases there may be no localising signs and pneumococci may be cultivated from the blood. From a prognostic point of view we must bear in mind the possibility of the development of fresh lesions—e.g., empyema. Pericarditis is not very uncommon, especially in children. Meningitis, arthritis, ulcerative endocarditis, and peritonitis have also been traced to pneumococcic infection. A considerable number of cases of pneumococcic pyæmia[4] are now on record and here again in children we find special susceptibility to the formation of metastatic foci.

Fatality.—There is some ground for the opinion that during recent years pneumonia has been increasingly fatal. The reason that the last decade of the nineteenth century compares ill with the previous one may be due to the frequent presence of epidemic influenza among us. Pneumonia is called by Professor Osler "one of the most widespread and fatal of all acute diseases, killing more than diphtheria and outranking even consumption as a cause of death."[5] It is open to question whether this statement applies to all localities and it must be borne in mind that the fatality of pneumonia varies in different years. Statistics are apt to be unreliable owing to the mixing up of deaths from croupous pneumonia with those from broncho- and various secondary forms of pneumonia. In Nottingham for

[1] A paper read before the Grantham Medical Society on Oct. 12th, 1905.
[2] Osler.
[3] Text-book of Medicine.
[4] See THE LANCET, Oct. 8th, 1904, p. 1017.
[5] Op. cit.

the year 1904, 328 persons are returned as dying from tuberculosis of the lungs, 39 from croupous pneumonia, and 175 from lobular pneumonia.

Age.—Age is of great importance in estimating the prognosis of pneumonia. Under two years of age the mortality is 50 per cent. After this there is a rapid decline and the death-rate remains low until about the age of 20 years. From 20 years to the end of life each decade shows an increasing tendency to a fatal issue.[6] The greatest incidence is during the third and fourth decades of life and this also is a very fatal period, more so than we should expect considering the comparative degree of health and vigour enjoyed by most people up to 40 years of age. Of the 39 deaths in Nottingham in 1904 17 occurred between the ages of 25 and 45 years.

Empyema.—Another point to bear in mind is the increasing tendency to secondary empyema which has manifested itself in recent years. At Guy's Hospital during the eight years 1891–98 the pneumonia cases were double the number which occurred during the previous eight years, while empyema as a sequel occurred over five times as often.[7]

Complications.—Pre-existing cardiac disease is naturally a very serious complication of pneumonia. Chronic bronchitis and emphysema are also unfavourable, although, as West points out,[8] a generalised bronchitis and œdema of the lung arising during pneumonia is of much worse prognostic import than when the order of events is reversed. Death from pneumonia is generally due to failure of the right side of the heart, so chronic sufferers from bronchitis and asthma, who often have hypertrophied right ventricles, may thus reap some compensatory advantage. But when that hypertrophy has given place to dilatation and tricuspid incompetence the prognosis is proportionately worse. A degenerated heart is a worse complication than a well-compensated valvular lesion. Pericarditis arising during an attack, with its attendant myocarditis, is a very grave complication. Patients of stout plethoric habit, whose tissues even in health are badly aerated, are bad subjects for pneumonia. Pregnancy if advanced greatly increases the danger.

Course of the disease.—The outlook of a pneumonia becomes more and more grave as day by day a gradual extension of the consolidation is observed. The most favourable cases as a rule occur in young subjects with one lower lobe involved and without spreading tendency. In other cases the disease involves successively either the remaining part of the lung originally attacked or the opposite base, or both these regions. Even then recovery is not hopeless if the heart proves equal to the extra work imposed on it. The circulatory strain is doubtless upon the right heart, but the whole organ suffers from the combined effects of the fever, the toxin, and non-aeration of the blood. The asphyxiated condition, although probably always existing in a bad case, may not be very obvious when combined with much general asthenia; in many cases the face remains pale or ashen grey and the end is due to gradual failure of the heart. The right ventricle, however, may be gradually failing, while the radial pulse remains good. The signs of this are increased dulness in the third and fourth intercostal spaces to the right of the sternum, epigastric pulsation, and fulness of the veins of the neck. The pulse-respiration ratio must be carefully observed and noted. West says:[9] "In the adult a pulse above 120 or a respiration rate above 50 is grave, and with a pulse above 130 or respirations above 60 few recover. In children, however, the pulse may reach 160 or more and the respirations 60 or even 80, and yet the cases do well." On the other hand, I have known the pulse remain about 120 and the breathing not more than 45 up to within a few hours of death. Some of the cases which begin with very rapid pulse and breathing, say 150 and 60, with signs of consolidation at one or both bases, ultimately develop empyema and recover. Hence the necessity of using the exploring needle in the case of any pneumonia which does not seem to be following a normal course. In a favourable case the sputum is scanty, amounting to from one to two ounces, characteristically viscid and rusty. A large amount of sputum, especially if thin and mixed with bronchitic mucus, is unfavourable. Sudden cessation of a profuse expectoration, with no improvement in the general condition, is a bad sign. Thin brownish, prune-juice sputum is an unfavourable sign, so also is the free discharge of almost pure blood. A herpetic eruption on the lip is favourable and its absence the opposite. A moderately high temperature, say 104° F., is not unfavourable in pneumonia, but a higher range if persistent points to danger. The disease, however, may be very severe with a temperature of 102° or 103°.

Serum treatment.—Pneumonia being a bacterial disease it is only natural that anti pneumococcic serums should have been prepared and used. This is a hopeful line of investigation and may lead eventually to the discovery of an efficient antidote. The best authorities on the subject do not place a high value on any of the serums hitherto brought forward. Cases of apparent cure by means of anti-pneumococcic serum are from time to time published, but it so happens that the remedy has often been used about the time when a natural crisis might be expected; and the same remark applies to numerous remedies, for which startling success has been claimed when given about this period of the disease. In the great majority of cases the disease comes to a natural end about the seventh day, if not earlier, by virtue of the formation of antitoxins, and there ensues a "huge phagocytic banquet."[10] In other cases, generally those of delayed crisis, the lung passes into a state of grey hepatisation as evidenced to our senses by the expectoration of greenish muco-purulent matter, and we know that (to make use again of the picturesque language of Dr. W. Ewart) there has occurred "a wholesale phagocytic disaster and annihilation." If we wish to avoid such a disaster the treatment of our patient must be based on correct strategy, we must know our allies and when to employ them with greatest effect, and we must shun those false friends which, while seeming to give help and relief, in the long run only aid the enemy.

General management.—When the patient is first seen the usual physical signs may have already appeared, but at an earlier stage the occurrence of a rigor, followed rapidly as it usually is by fever, pain in the side, and dyspnœa, is often sufficient to indicate what is coming. The patient should occupy a well-ventilated room, at a temperature of about 60° F., provided with screens or some means of breaking the force of strong currents of air. But ventilation he must have and in no disease is the vital importance of this so urgent. The head and shoulders should be somewhat raised, but orthopnœa is not a prominent symptom. At a later stage, when the patient tends to slip down in bed, I like him to be propped up by a bed-rest so that the extraordinary muscles of respiration may be brought into full play. The food should consist of milk, diluted with soda-water or barley-water. Plain water or lemon drink may be given *ad lib.*, as they tend to act as diuretics and to wash the toxin out of the system. It is possible that we sometimes carry to excess the practice of the distinguished physician who wished the words "He fed fevers" to be written on his tombstone. Both in typhoid fever and pneumonia distinguished writers are advocating the use of well-diluted milk and even whey. The food value of beef-tea is extremely small and the extractives which it contains probably do harm by increasing the work of the overburdened kidneys. We give proteid food in the hope that we lessen the enormous consumption of the proteid tissues, but if we consider the disordered quality of the only secretion open to us—namely, the urine—we cannot resist the conclusion that the digestive juices are exceedingly scanty, altered in quality, or perhaps absent. Hence the value of predigested food. Tympanites is a somewhat common symptom in the later stages of a pneumonia, and a troublesome and even dangerous symptom too. It seems to be part of a general asthenic condition but it cannot but be aggravated by undigested curd of milk in the intestine. A more digestible form of proteid consists of white of egg which may be diluted with whey or water and in some cases the yelks can be separately beaten up and taken. Dried milk preparations, such as Horlick's malted milk and plasmon, are sometimes useful, also meat juice or somatose which contains predigested proteid.

Use and abuse of drugs.—The bowels should be well cleared by a brisk purge on the first day; at a later stage purging may not be safe, much as we are tempted to give purgatives when we find the labouring diaphragm unable to descend on account of flatulent distension. A stomach distended by gas cannot but be harmful to the embarrassed heart as well as to the disturbed respiratory movements,

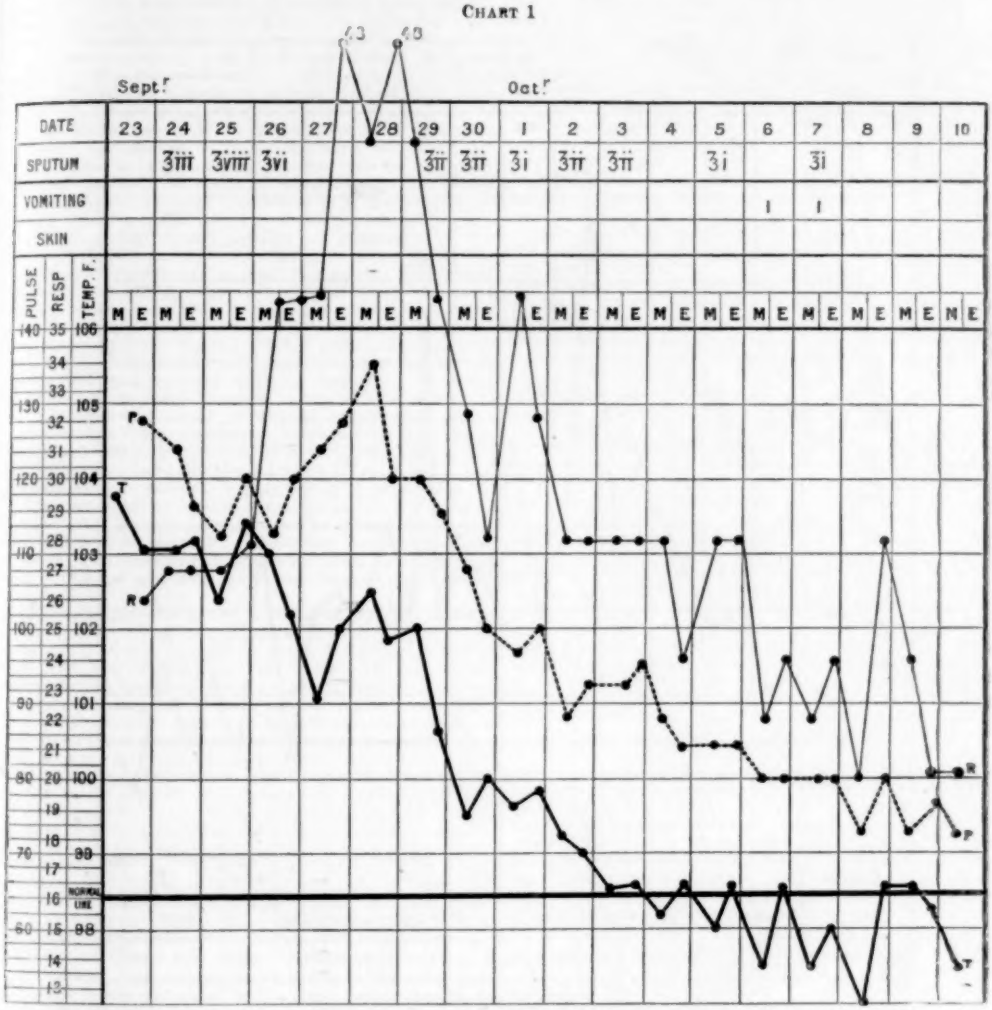
[6] West: Diseases of the Respiratory Organs, vol. i.
[7] Osler: Op. cit.
[8] Op. cit., vol. i., p. 293.
[9] Ibid., p. 302.

[10] THE LANCET, Jan. 21st, 1905, pp. 138 et seq.

hence we are warned[11] not to give carbonates of the alkaline metals. Ammonia, though not often required in the early days, can be given in the form of aromatic spirit, which does not contain much carbonate. Citrates also form carbonic acid in the blood and in either case it may be harmful to put more carbonic acid into a body which cannot get rid of the products of its own metabolism. A simple saline medicine containing acetate of ammonium and spirit of nitre should be prescribed, with perhaps a little citrate or carbonate of potassium as a diuretic. This, I think, can be safely given during the first day or two, as the above-mentioned difficulties of elimination are not of great importance until later. Quinine has its advocates, but the small doses ordinarily used have no effect on the temperature. I often put a little liquid extract of cinchona into a mixture but I regard it as an excipient like any bitter infusion. It is difficult to shake off the influence of tradition, and this of giving bark in pneumonia probably sticks to all of us. The early administration of ammonia is probably harmful and excites needless cough. It is a powerful stimulant to the respiratory centre and should be reserved for a stage when expectorant remedies are more needed and the respiratory movements are in danger of flagging.

Opium.—The pain in the side, causing the breathing to be difficult and restrained, calls for relief. A hypodermic injection of morphine is often given and is generally an efficacious anodyne, but in my opinion it should not be given until local applications to the chest, which will be presently considered, have had a fair trial. It may be quite safe to give morphine during the early stages of a pneumonia, but once given the patient is very likely to insist on having it repeated as the effects pass off. I am inclined to think that the drug is not very rapidly eliminated and that its dulling effects are apt to cling to the nervous mechanism of respiration until a time arrives when life depends on the most lively activity of that mechanism. In a leading article in THE LANCET[12] in 1904 these views on the danger of morphine given to allay pain or cough are most impressively enforced. The editors quote with approval Sir William T. Gairdner's view of the extreme danger of opium in pneumonia,[13] seeing that "the safety of the patient depends upon the respiratory nerve centres being

CHART 1


Sept.r
Oct.r
DATE
23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10
SPUTUM
VOMITING
SKIN
PULSE
RESP
TEMP. F.
M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E
P
T
R
NORMAL LINE

Acute pneumonia. The dotted line indicates the pulse; the thick line the temperature; and the thin line the respiration.

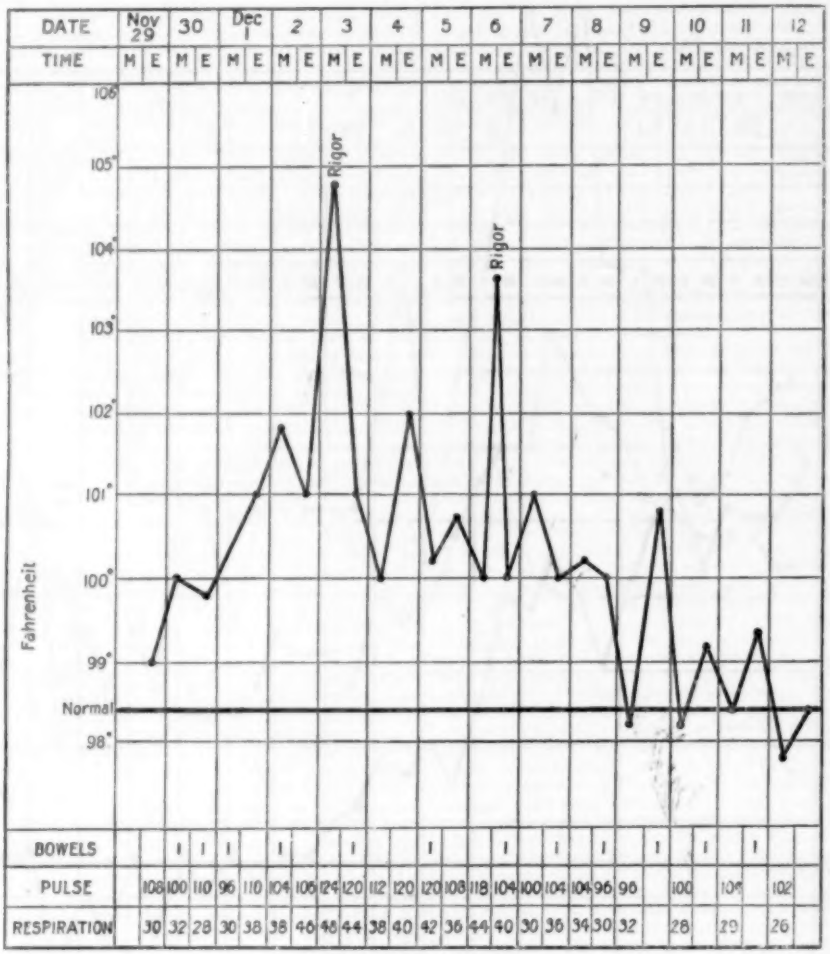
[11] Ewart: Loc. cit.

[12] THE LANCET, Feb. 20th, 1904, p. 517.
[13] Glasgow Medical Journal, April, 1902.

kept as it were 'wide awake.'" Towards the crisis, when the strain on the lungs, even the least affected portions, is evident, in some cases, by the presence of loud bubbling râles, Sir William Gairdner has learned to dread giving opium or its preparations more than almost any other drug. No doubt there are cases in which continued pain, insomnia, or delirium is a serious danger and the cause of grave nervous exhaustion: then it may be justifiable to give morphine, chloral, or some sedative. Personally I should prefer to give $\frac{1}{100}$th of a grain of hyoscine and repeat in an hour or two if necessary. An ice-cap to the head and bromide of ammonium are also useful in these circumstances. For violent maniacal delirium, the late Dr. George

the application of ice-bags to the chest wall, which is now generally in use in the treatment of pneumonia at the Nottingham General Hospital. My own experience of this treatment is as yet comparatively small but so far as it has gone I am strongly impressed with its usefulness and intend to continue it in suitable cases whenever possible. On the appearance of pain in the side and symptoms pointing to a commencing pneumonia an ice-bag should be applied to the affected spot. It should be wrapped in flannel or padded with wool to prevent irritation. It is generally effectual in relieving the pain and has doubtless some influence in keeping down temperature. To guard against suddenly chilling the patient there should be one or

CHART 2.



Irregular pneumonic fever.

Balfour's prescription of half a drachm of hydrate of chloral and 20 minims of tincture of digitalis sometimes succeeds admirably. In any case the patient must not be allowed to exhaust himself by restlessness or struggling and the administration of a sedative, even morphine, preferably combined with atropine, may seem the lesser evil. The effects of another class of sedatives—namely, antipyrine and its allies—are so dangerous that we have all learned to avoid them. Pneumonia with delirium in alcoholic subjects is notoriously dangerous and sedatives must often be given at whatever risk.

Ice-bags.—To return now to the pain in the side and general management of the case. I should like to refer to more hot bottles to the feet; in the case of children this precaution is more required even than in the case of adults. If pain continues in spite of the ice the application of three or four leeches to the side is very often successful. Counter-irritation by a blister or hot mustard poultice is frequently employed but will not be required if ice is applied. As the case goes on the ice-bag may have to be moved as the disease spreads in the lung and a second one applied if the opposite lung becomes affected. The effect on the temperature must be carefully watched, especially towards the end of the week if the crisis has not already occurred. About this time there is in some cases a natural tendency to collapse and subnormal temperature, hence the

tags should be taken away when the pyrexia is reduced to 100° F. Even before this stage is reached if any symptoms of great asthenia and prostration appear it would be better to remove the ice, at least for a time. Obviously, this mode of treatment is more suitable for the young and robust than for the old and debilitated. Full particulars concerning the ice-treatment are contained in Dr. D. B. Lees's Harveian lectures.[14] He believes that the treatment is antagonistic to the growth of the microbes in the lung, but whether this be so or not, he concludes that "anyone who will thoroughly and carefully employ it in the manner already detailed, and with the precautions above mentioned, will soon be convinced of its practical usefulness."

Alcohol.—The administration of alcohol to young healthy persons with full, well-sustained pulse is not required in pneumonia. Personally I sympathise with the present-day tendency to prescribe less alcohol in acute febrile diseases. I believe this tendency is due not merely to fashion and the swing of the pendulum but is based on actual observation and the experience of distinguished men who are best capable of guiding the profession. When the pulse begins to show signs of failure the question of giving stimulant will arise. My own practice is to give a small amount not too frequently repeated—say half an ounce of brandy every four hours. This amount may help the circulation as it temporarily increases the force of the heart and dilates the arterioles. The important centres of the medulla are stimulated by the increased blood flow. The stimulation is succeeded by depression. If the attempt is made to maintain the state of excitement by giving large and repeated doses the nerve centres become exhausted. Ultimately alcohol is a protoplasmic poison, whether we look at brain, nerve, heart muscle, or any other tissue. I think small quantities such as I should advocate are useful as sedatives to the nervous system and may perhaps mitigate insomnia. In many cases, indeed, we shall do better to try to focus our minds on the sedative qualities of alcohol rather than on its supposed stimulating properties. It is a natural thing when the critical time comes to rush in with all the cardiac and respiratory tonics and stimulants we can think of, and life is not long enough—certainly it may not be in pneumonia—to differentiate which of our drugs are really beneficial. I think, however, that it is possible to exercise greater discrimination than is often the case. What good, for instance, can come of pouring brandy in poisonous doses into a patient who for hours and even days may have been obviously dying?[15]

Strychnine, &c.—When the pulse begins to fail in strength and it is evident that the patient's powers are going to be taxed to the utmost I commence the hypodermic injection of strychnine, five minims every four hours. The face should be watched for muscular twitching, but it may be necessary to push the drug until twitching is elicited. Digitalis may be given by the mouth or by injection, either with or without strychnine. In a case which I saw in consultation, that of a woman over 60 years of age, the pulse was very irregular quite early in the attack. Digitalis was given and seemed to aid the patient's recovery. In another case, that of a man, aged 73 years, who was subject to bronchitis, irregularity of the pulse occurred on the second or third day. Strychnine was given four-hourly and continued during a very severe attack prolonged into the third week but ending at last in recovery. The stimulant effect of ammonia is better reserved for a period when the respiration has its hardest work to do and is in danger of failing to do it. This is especially the case when mucus accumulates in the bronchial tubes and œdematous fluid collects in the air cells.

Belladonna.—Now is the time to give belladonna and even to push it, as the patient is in imminent danger of suffocation. Belladonna stimulates the respiratory centre, but still more useful is its two-fold action on the bronchial tubes, the drying up of their secretion and the allaying of spasm. The well-known supporting action of caffeine must not be forgotten, and it may be most conveniently given in the form of several cups of tea in the course of the day.

Oxygen.—If I have left mention of oxygen gas till this late stage, it is not because I despise its usefulness. It has fallen into some disrepute because all the great things expected of it have not come to pass. A recent writer says: "I have seen oxygen cylinders ordered for the relief of a patient while the atmosphere of his room was stifling in the extreme—an irrational proceeding surely!"[16] Oxygen should be in readiness in any case of pneumonia and given as soon as cyanosis is apparent. A short inhalation at one time is generally sufficient and may be intermitted as soon as the colour improves. As carbonic acid accumulates in the blood not only the heart but all the tissues suffer from gradually deepening asphyxia. The *rationale* of giving oxygen is not to expect it to save the patient when death is in sight but to combat asphyxia at a time when there is some hope of success.

Meteorism.—If there is gaseous distension of the abdominal viscera an attempt must be made to relieve it by carminatives such as aromatic spirit of ammonia, ether, and so forth, or antiseptics like creosote. Turpentine fomentations and enemas may be useful. After the bowels have been well relieved at the commencement by purgatives a daily action should be obtained by enema. A brisk calomel purge may seem to be proper treatment for sluggish peristalsis and meteorism but if given late in the attack it may excite a troublesome diarrhœa sufficient to turn the scale against the patient.

Blood-letting.—The whole of our treatment should be guided by careful examination of the heart and lungs and by this I mean a reasonable amount of examination consistent with the patient's ability to bear it. For instance, the heart may be examined once or twice a day without in the least disturbing him. From the nature of the case the strain is on the right side of the heart and the points to note are the extent of cardiac dulness to the right of the sternum met with first in the fourth, and then also in the third, intercostal space, and the quality of the second sound in the pulmonary area. Confirmatory symptoms are cyanosis of the lips, the face, or the finger-tips, and, according to Dr. Lees,[17] restlessness, shallow respiration, and cardiac oppression and distress. The right auricle is not easy to percuss, as it is overlain by lung, which may be either hyperdistended or solid. But in any patient obviously worse by the fourth day, especially if cyanosed or presenting the above symptoms, it is a tolerably safe assumption that the right ventricle is failing and that the venous system is engorged. Dr. Lees continues: "This right heart misery may be quickly relieved by a little loss of blood. In an early stage from three to six leeches will at once remove the distress and the dulness of the right auricle rapidly diminishes to the normal finger-breadth. If the early leeching be omitted the right auricle may become much distended and right heart misery may be marked. In this condition it will be better to have recourse to venesection and to remove six to eight ounces of blood. A larger quantity should be taken when the dilatation of the right heart is great, the pulmonary consolidation extensive, and moist râles heard over the rest of the lungs." In conjunction with bleeding it may be necessary to limit the amount of liquid taken by the patient, giving more concentrated food, in order to reduce the bulk of the circulating blood. Further on Dr. Lees says: "When a careful watch has been kept on the right heart and it has been duly relieved by leeches, and at the same time a vigorous attack has been made on the inflamed areas in the lungs by the free use of ice externally, morphine is hardly ever necessary unless the pleura is severely involved and an empyema is forming." My own opinion is that the above reasoning is sound and that the abstraction of blood in suitable cases is worthy of trial.

I will now relate a case in which leeching and other treatment appeared to contribute to a favourable issue. For the following notes I am indebted to Dr. J. Edward and Dr. Jackson Taylor, house physicians at the Nottingham General Hospital.

The patient was a single woman, aged 35 years, who had previously enjoyed good health with the exception that she had been liable to spasmodic asthma for the last 18 years. On being examined previously to her present illness it had been found that her chest was capacious and hyper-resonant. On Sept. 22nd, 1905, she was taken ill with shivering, malaise, pain in the right side, and vomiting. On the 23rd she was admitted to hospital. She was very dyspnœic, the respirations being rapid, short, and painful. The temperature was 103·8° F. and the pulse was 128. The alæ nasi were working. The tongue was dry and parched. There was a patch of dulness with tubular breathing below the angle of

[14] THE LANCET, 1903, vol. ii.

[15] For a carefully reasoned argument against the use of alcohol in pneumonia see a paper by Dr. John Hay in THE LANCET of June 11th, 1904, p. 1643. Also a paper by Sir James Barr in the *British Medical Journal*, July 1st, 1905.

[16] R. W. Philip in Gibson's "Medicine," vol. i., p. 244.

[17] Harveian Lectures, THE LANCET, vol. ii., 1903.

the right scapula. A friction sound was also heard. There were crepitations and rhonchi over the posterior and lateral region of both lungs. On the 24th the dulness had extended over the whole lower lobe; the sputum (three ounces) was very tenacious and rusty. On the 25th the dulness had spread all over the right back from the apex to the base and forward to the nipple level. Numerous moist râles were heard everywhere, sharp and consonating over the right back owing to the consolidation. The sputum (six ounces) was deeply blood-stained, viscid, and with a layer of froth on the top. On the 26th the patient was first seen by Dr. Cattle, the condition being as above described. The respirations were 36, chiefly diaphragmatic and laboured. The pulse was 120. The ice-bag, which had been applied from the commencement, was continued to the right back and side. Five minims of tincture of belladonna were added to a quinine mixture for the purpose of diminishing the amount of expectoration; also liquor strychninæ, five minims, every four hours hypodermically and brandy, half an ounce four-hourly, were given. In the evening there was distinct cyanosis of the lips and cheeks, but it was not possible to map out the right auricle by percussion. Six leeches were ordered to be put over the lower ribs; only three took effect, which with the help of fomentations would draw about one and a half ounces of blood. On the 27th the breathing was 48 and the pulse was 124. Dulness had spread to the lower third of the left lung. Dry and moist râles still continued all over. No sputum was saved, the amount spat up being received into rags. A second ice-bag was applied to the left side. Oxygen was ordered to be inhaled from time to time. In the evening the following mixture was given: ten grains of bromide of ammonium, five grains of carbonate of ammonium, 20 minims of liquid extract of cinchona, seven and a half minims of tincture of belladonna, five minims of spirit of chloroform, with water to one ounce, to be taken every four hours. Six leeches, five of which bit well, were ordered to be put to the right side. On the 28th the breathing was 48, the pulse was 136, and the temperature was 102·6°. The patient had been delirious during the night, but could be controlled by a nurse constantly by her side. She had passed urine involuntarily and 36 ounces were drawn off. The amount of sputum was now small, but all sorts of râles could still be heard. Her strength was well maintained. In the evening she was still mildly delirious. There had been very little sleep for several nights. It was quite unsafe to give sedatives, but in the hope of procuring sleep a small ice-bag was put on her head. On the 29th there had been no crisis, the morning temperature was 102°, while that of the evening was 100·6°. There was considerable gaseous distension of the bowels for which a turpentine enema was given and a turpentine fomentation was applied; there had been no action of the bowels for three days. In the evening the temperature was falling and directions were given for the ice bags to be taken away when the temperature reached 100°. The patient was drowsy. On the 30th the temperature fell to 99·4°, the pulse was 100, and the respirations were 28; the patient was perspiring. During the day the bowels acted three times without purgatives, on the next day there were three evacuations, and on the following day two. By Oct. 3rd the temperature was normal. The lungs rapidly cleared and convalescence, though slow, was uninterrupted. On the 3rd the brandy was reduced to two ounces and soon afterwards it was discontinued. On Sept. 30th the bromide had been discontinued, the strychnine being altered to six-hourly doses and soon afterwards being discontinued. On Oct. 4th a fish diet was ordered.

It will be noticed that the temperature fell by lysis. (See Chart 1.) The other chart (Chart 2) relates to a severe and peculiar attack of pneumonia in a patient, aged 73 years, who suffered from mild chronic bronchitis and slight prostatic trouble. He began with severe shivering and pain in the left side during the night of Nov. 27th, 1904. There is no record of the temperature until the evening of the second day of the attack. The chief points to notice about the chart are the length of the attack (which was longer, indeed, than is shown on the chart), the extreme irregularity of the fever, and the very rare event of repeated rigors. West says: "Rigors, under any circumstances (qualified, however, by a footnote) occur during the first few hours only."[18] This patient had a severe rigor on the sixth day, the temperature reaching 105°, and another on the ninth day, when the temperature was 103·6°; on the twelfth day there was a sudden rise of two degrees without rigor. On the day following the rigor in each case the sputum, which had been becoming paler, was more deeply blood-stained and more abundant, so that the rigor appeared to be significant of a definite extension of the disease in the lung. The physical signs were not prominent; there were some dulness and tubular breathing near the outer border of the left scapula which gradually extended into the axilla. On the second day the pulse was exceedingly intermittent and shaky, so strychnine injections were commenced and continued for at least a fortnight but there is no record of when exactly they were left off. Under this treatment the pulse became firm and regular. Oxygen was used but did not bulk largely in the treatment. Neither ice nor blood-letting was employed. No opium was given; pain and cough had to be quieted as best they could. A fair amount of sleep was obtained. Owing to weakness and the recumbent position the catheter was passed occasionally. After the rigors the patient remained very much exhausted for several hours and on more than one occasion seemed on the point of sinking into a semi-comatose condition. He was accustomed to take a little whisky and seemed all the better for the small allowance, which for part of the time was changed to a corresponding quantity of champagne. Another minor difficulty arose from too zealous poulticing by the patient's relatives; in fact, the treatment was carried out before I saw him. In consequence the cuticle separated from a large area on the left flank and left a granulating, suppurating sore. We were henceforth precluded from applying anything to the chest except zinc ointment and a bandage. The bowels were constipated throughout and the patient complained very much of flatulent distension of the stomach and the bowels, which we relieved as best we could. The pulse was very slow in regaining a normal rate, as shown by the chart, and was still about 90 at the end of the third week. The patient is still alive and well a year after his illness.

Nottingham.

[18] See THE LANCET, Jan. 16th, 1904, p. 150, for an account of a remarkable case in which repeated rigors occurred.

THE PSYCHOLOGY OF THE TUBERCULOUS.

BY ALFRED S. GUBB, M.D. PARIS, L.R.C.P. LOND., ETC.

PROLONGED observation of a number of tuberculous persons, some of them patients, others acquaintances or friends, has led me to believe that tuberculosis has a distinct and often a well-marked influence on the mentality of its victims. In certain instances, when the disease might be described as latent in the sense that its foci were for the time being circumscribed and inactive, the psychical changes continued their evolution until an explosive recrudescence of the tuberculous process in the lungs or brain brought life to an end. There are presumably two principal morbid processes at work in determining these psychical changes and they require to be distinguished from each other, though clinically it cannot always be possible to establish the distinction in the absence of the anatomical proof. These are (1) changes of mental temperament presumably due to the action on the nervous system of the toxins elaborated by the tubercle bacillus; and (2) modifications of character due to mechanical interference with the cerebral functions secondary to the deposit of tubercle within or upon the brain. Such deposits, according to Dr. F. W. Mott, have been known to cause epilepsy and melancholia and no doubt when less voluminous may determine other manifestations of impairment of cerebral function. Inasmuch as it is by no means uncommon for stray tubercles to form on the meninges in the subjects of tubercle elsewhere, the lungs, for example, only post-mortem examination can enable us to estimate how much of the psychical change is due to intoxication and how much to the mechanical cause. Now post-mortem examination can only be carried out on a large scale in hospital, that is to say in circumstances unfavourable to close persistent observation of the patients' mental peculiarities, while in private life we are often reduced to mere surmise since no pathological evidence may be obtainable to assist us in explaining the clinical phenomena.

The characteristic feature of the general psychology of the tuberculous is instability, feverish activity followed by

periods of intense depression, phases of despair giving place to the elaboration of plans for a distant future, fits of hypochondria, relief from which is sought in intense application to work, a reckless indulgence in sensual pleasures and exaggerated idealism with a tendency to sentimentality and generalisation; in other words, there is a well-marked intensification of cerebral function, the manifestations whereof are subject to the temperamental peculiarities of the individual. During the stage of invasion a certain tendency to refinement is noticeable, both physical and mental, and under its influence the artistic and imaginative faculties are often stimulated to unprecedented feats, doomed but too often to failure by abrupt collapse of physical energy.

The tendency to take a sanguine view of things becomes more marked as the disease advances. When a patient first learns that his lungs are affected he usually displays great anxiety and is depressed. The mental depression, however, gradually subsides until at the terminal period, in spite of overwhelming evidence that his days are numbered, the victim obstinately make plans or initiates enterprises incapable of achievement in the brief space of life that remains. Patients are buoyed up by a hope that knows no contradiction and display impatience or even anger when attempts are made to get them to realise the seriousness of their plight. This holds good of most cases of pulmonary phthisis, though of course it varies in degree according to the fundamental temperament of the subject and the degree of impairment of nutrition. This tendency to take a sanguine view of things manifests itself in other directions. Although their constitution is being slowly undermined the phthisical are often of exuberant spirits and prone to exertions far in excess of their physical powers. The reproductive function is peculiarly active and the fertility of tuberculous couples is almost proverbial. These subjects throw themselves into "life" with a zest which is often assumed to be the cause, instead of the result, of the tuberculous process. These features are specially well marked in cases characterised by a short, acute terminal period. Up to a certain point the exaggerated metabolism appears to provide the necessary supply of nervous energy until the final breakdown comes and the impoverished organism falls an unresisting prey to the tuberculous invasion.

Far more interesting are the changes that occur as the result of mechanical interference with the cerebral functions due to the presence of tuberculous deposits on the meninges or in the brain. I can best illustrate my meaning by relating two cases in the same family in which an initial localised pulmonary lesion was followed by a marked deterioration in the moral being of the victims.

CASE 1.—A lad, aged 15 years, whose father was healthy but whose mother was alcoholic, had an attack of pleurisy with effusion which kept him in bed for a month. Previously a highly intelligent, well-conducted youth, it was noted soon after the attack that he had become untruthful and in many respects untrustworthy—in fact, the perception of right and wrong seemed to have been blurred. He suffered from cough and lost weight considerably, but under suitable treatment he recovered to a certain extent. His mental condition, however, steadily became worse and he became morally irresponsible, though probably not to a degree that would be recognised by a court of law as exempting from punishment. He was ultimately sent to sea but in the course of his first voyage he developed tuberculous meningitis and returned home to die. Post-mortem examination revealed old-standing tuberculous lesions on the meninges and fresh foci at the base of the brain. The tuberculous nature of the pleurisy was evidenced by the spread of the process into the adjacent lung substance.

CASE 2.—The sister of the previous patient had an attack of what was diagnosed to be influenza followed by bronchopneumonia at the age of seven years. This ran a protracted course and after her recovery she began to manifest the same loss of moral tone, was untruthful, eccentric, and addicted to coarseness of language and behaviour. These changes coincided with the development of internal strabismus which was not improved when a moderate degree of hypermetropia was corrected by the use of spectacles. Formerly lively, playful, and fond of lessons, she became listless, indifferent, and would, if left undisturbed, remain motionless for hours immersed in a "brown study." Her intellectual powers were greatly impaired. She could not be taught to tell the time by the clock until she was 15 years of age, and the simplest problems in arithmetic quite baffled her. At 16 she suffered for some months from goitre which attained such dimensions as to press upon the trachea causing stertor on slight exertion, but this subsided under appropriate treatment. In this case the conclusive proof of the tuberculous causation of the mental disturbance is wanting since she is still living and enjoys fairly good health, so far as the bodily functions are concerned.

Some time ago in an article by M. Camille Mauclair,[1] entitled "Watteau et la Phtisie," I found unexpected confirmation of my ideas on the subject. The author ascribes Watteau's transcendental delicacy of perception and execution to the exaltation begotten of tuberculous intoxication and he instances a number of great men whose death was due to pulmonary phthisis in whom the tuberculous infection seemed to have developed their faculties to a previously unattained brilliancy. He describes them as suffering from an intellectual affection which he calls "*la maladie de l'infini*." It is seen, he says, in Schubert; in Novellis, who died when only 29 years of age; in Frederick Chopin, who died at 39 years of age; in Verlaine, Henri Heine, Mozart, &c. Though he uses the term malady he is careful to explain that he does not wish it to be inferred that there was anything morbid in their achievements, the physiological influence of phthisis merely accentuating a natural predisposition to idealism. Dr. Mott tells me that melancholia is nearly always met with in insane patients suffering from tuberculosis and that the onset of the mental symptoms often appears to coincide with the development of the tubercle. It is noteworthy that general paralytics are very free from tubercle in contrast with imbeciles, idiots, and the subjects of primary dementia of adolescence who are particularly prone thereto. I am conscious that my contribution can have but a limited value if for no other reason than my inability to adduce sufficient anatomical evidence of the co-relation of meningeal and cerebral tubercle with mental deterioration. The subject, however, is one of considerable interest.

Mustapha Supérieur, Algiers.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL AND THERAPEUTICAL.

A PRACTICAL EXPERIENCE WITH ADRENALIN AS A CARDIAC AND VASO-MOTOR STIMULANT.

BY H. O. BUTLER, M.B. CANTAB.

THE use of adrenalin as a local vaso-motor constrictor is well enough known but I do not think that its general action on the circulatory mechanism is sufficiently recognised. That this action in suitable cases may be of the utmost practical value the following case will show.

The patient, a child aged ten years, was taken ill with measles on Jan. 2nd. She was attended by a most competent nurse and beyond diagnosing the affection I paid no visits. On the 14th without having left her bed the patient contracted pneumonia. The general course of the disease was of interest from three points: (1) the only physical signs during the whole duration were a few crepitations at the left base, a slight accentuation of the stomach sounds, and for two days a small pleuritic rub—a central left-sided and basal pneumonia obviously accounting for this; (2) the high range of temperature, this remaining steadily between 106° and 107° F. except when lowered by sponging and ice packs; and (3) the toxæmic and not local character of the disease. The treatment was symptomatic throughout. The crisis occurred on the seventh day and stimulants were indicated and freely given. 24 hours later I was called and was told that the temperature was 96·5°, the pulse was 60, the colour was bad, and the respirations were inclined to be of Cheyne Stokes type. The child looked when I saw her as if her temperature were decidedly raised, the face being very flushed, but the pulse was of extremely low tension. This appeared to be due to exhaustion of the vaso-motor controlling centre. Stimulants and strychnine, hypodermically as

[1] Revue Illus., August, 1904.

well as by the mouth, were pushed, but as the tension steadily became less I infused one pint of normal saline solution subcutaneously. The pulse improved promptly but fell back again in a quarter of an hour. Five pints of the solution were then slowly infused, two hours being taken altogether, but the general condition became steadily worse. At 3 P.M. the pulse was 50, the vessel walls were completely relaxed, and the child was to all appearance dying rapidly. In desperation I thought of the theoretical effect of adrenalin and injected 15 minims. By this time the pulse was imperceptible and the child, I thought, at the point of death. The immediate effect of the injection was that the child to all appearance died, but in about five minutes a nurse came to tell me that the child had spoken and that the pulse had improved wonderfully. The change I noticed was extraordinary; the child's face was flushed, her pulse was 100 and of good tension, and she was talking about ordinary affairs. In about 15 minutes the pulse weakened again and 10 minims were given by the mouth and in another quarter of an hour eight minims hypodermically. The pulse for the next five hours remained of fair tension and strychnine and stimulants were pushed to the utmost. Signs of the pulse weakening again appearing, three injections of five minims of adrenalin were given at two-hour intervals as the condition of the pulse demanded. Each time, however, it was noticed what was most apparent after the initial large injection—namely, that the immediate effect was an increase of pallor and a weakening of the pulse, followed by great and rapid improvement. This with each injection becoming more apparent, five minims by the mouth were substituted for the injection, but was only once necessary. All this time the child was in a perfect bath of perspiration, due, I suppose, to the large amount of fluid injected *plus* the return of vaso-motor tone. Convalescence from this point was uninterrupted except that a post-critical rise in temperature to 103° occurred.

No words of mine can express the absolutely marvellous nature of the change in the child's condition due to the drug, and I trust that this note may be the means of calling the usefulness of adrenalin in suitable cases to the attention of others. Probably if it had been infused with the normal saline solution the result would have been still better. The preparation I used was Messrs. Parke, Davis, and Co.'s 1 in 1000 solution.

Chiswick.

A CASE OF MARKED INTOLERANCE OF BELLADONNA.

BY T. R. WEBSTER ATKINS, L.R.C.P., L.R.C.S. EDIN., L.F.P.S. GLASG.

THE following case is remarkable as showing a very marked idiosyncrasy with respect to belladonna. The patient, who was a nurse suffering from cellulitis of the leg unattended with any abrasion of the skin, was ordered an application of "glycerine and belladonna." 40 minims of this mixture, that is approximately 20 grains of extract of belladonna, were applied to the inner side of the foot. Within half an hour the patient complained of great swelling of the leg and a sensation as if the skin would burst. Dryness of the throat and lips, a feeling as if the nipples were being forcibly retracted, and difficulty of speech quickly followed. The patient now became delirious, the pupils were widely dilated and insensible to light, the hands were kept in perpetual motion groping for imaginary objects, and efforts were made to tear the bedclothes. This delirium lasted for some hours, after which she gradually became more composed but felt as if she had passed through a severe illness. In 48 hours the dryness of the throat and the pain in the breasts had disappeared, though the pupils remained dilated and only resumed their normal condition on the fourth day. The treatment consisted in the administration of hot coffee and a quarter of a grain of morphine, together with the use of continuous hot applications.

Shepherd's Bush-road, W.

A CASE OF INTUSSUSCEPTION IN AN INFANT.

BY BERTRAM ADDENBROOKE, M.D. DURH.

THE following case seems to be worth recording on account of the rarity of the recovery of an infant of six months after extensive intussusception which was relieved by abdominal section. The history of the case is shortly as follows. The child was taken suddenly ill about 8 A.M. on Jan. 11th last with convulsions and vomiting. The medical man who was called in ordered the usual hot bath and castor oil, and saw the child again the following morning. By that time the convulsions had ceased, but as the child was obviously worse and per rectum a mass could be felt he was immediately sent into the Kidderminster Infirmary under my care for operation. Having to come from some distance in the country I could not operate till 8.30 P.M., about 36 hours after the probable commencement of the intussusception. After abdominal section, with the aid of an assistant's finger in the rectum, I was enabled to reduce the bowel and found the foremost part of the intussuscipiens to be the ileo-cæcal valve with the vermiform appendix; the whole operation from the commencement of the anæsthetic to the finish took 25 minutes; the child was very collapsed and ill for the next few days, though he had a good motion within 14 hours of the operation and I believe that a great help towards his recovery were the night and morning injections of $\frac{1}{300}$th of a grain of digitalin combined with $\frac{1}{10}$th of a grain of strychnine. The child returned home a month after the operation quite well and with the wound soundly healed.

Kidderminster.

THE OPERATION OF APPENDICOSTOMY.

BY H. M. W. GRAY, M.B. ABERD., F.R.C.S. EDIN., SURGEON TO THE ABERDEEN ROYAL INFIRMARY.

WITH reference to the recent communications on appendicostomy it may be interesting to place on record two cases which were operated on by me about 20 months ago (in the summer of 1904).

CASE 1.—The patient was a man, aged 30 years, with ulcerative colitis causing profuse bloody and mucous stools. He had never been abroad. The disease had resisted all treatment by the mouth and rectum and as the patient was evidently in a desperate condition I performed appendicostomy and washed out the colon through the opening—as described first by Weir—with various antiseptic and astringent lotions. He improved markedly for three weeks but then went downhill and died a week later. Post mortem there was found advanced ulceration of the colon and lower part of the ileum. This case was Mr. J. Marnoch's and came under my care as Mr. Marnoch was off duty for the time being.

CASE 2.—The patient was a young woman, aged 22 years, who discharged extensive casts of the colon and had frequent calls to stool. The condition was more annoying than detrimental to her health, but was quite sufficient to make her welcome any prospect of relief by operation, as it had resisted all other forms of treatment. Appendicostomy was performed and a weak solution of argyrol was used to flush out the colon. In three weeks cure had apparently resulted and the stump of the appendix was allowed to close, which it did very readily. Recently there has been a tendency of the colitis to relapse. If this becomes serious or is persistent I have advised her medical attendant to open the stump of the appendix (now level with the skin) and to wash out the bowel as before.

Aberdeen.

AUTOMOBILE EXHIBITION.—The eleventh annual International Automobile Exhibition will be held at the Royal Agricultural Hall, London, from March 24th to 31st. The latest types of British as well as Continental cars will be on view and prominence will be given to Italian cars and to some cars at popular prices. Further information in reference to the exhibition can be obtained from Messrs. Cordingley and Co., 27 to 33, Charing Cross-road, W.C.

TAUNTON ISOLATION HOSPITAL.—At the meeting of the Taunton town council held on Feb. 13th the subject of the joint management of the isolation hospital by the town council and the rural council was again discussed. The matter has been already alluded to in THE LANCET. Eventually it was decided, as a means of putting an end to the present deadlock, to advertise for a medical attendant for the institution. Dr. H. J. Alford, the medical officer of health, was in entire agreement with this decision.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

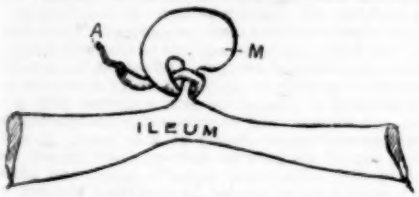
ROYAL HANTS COUNTY HOSPITAL, WINCHESTER.

A CASE OF AUTO-STRANGULATION OF MECKEL'S DIVERTICULUM.

(Under the care of Mr. F. J. CHILD.)

A LAD, aged 17 years, was admitted to the Royal Hants County Hospital suffering from abdominal pain which had been present for more than a week and had increased daily in severity. On the two days previous to his admission vomiting had occurred with increasing frequency but had not become fæculent in character. The bowels had not ceased to act and shortly before his admission both fæcal matter and flatus had been passed after the administration of an enema. On admission the abdomen was slightly distended and the rectus muscles on both sides were held contracted. On palpation nothing could be made out on account of the rigidity of the abdominal muscles, but bimanually, with one finger in the rectum, a large tender mass could be felt in the middle line in the region of the bladder. Previously to his admission there had been considerable pain on micturition. On percussion the note over the abdomen was hyper-resonant with the exception of a band of impaired resonance over the region of the urinary bladder, although the latter had been previously emptied. The general condition was poor on account of the persistent vomiting, the pulse being rapid (120) and thready, and the tongue dry and furred.

Supposing the case to be either one of appendicitis with pus tracking across the front of the bladder or of intussusception the abdomen was opened by splitting the right rectus muscle. On opening the peritoneal cavity recent adhesions were encountered but no pus was present. The cæcum was readily brought to the surface and the appendix vermiformis was found to be normal and free from adhesions; it was therefore allowed to fall back into the iliac fossa. In the midst of the adhesions lying up against the bladder a firm structure, about the size of a cherry, could be felt firmly bound down by a tight cord. The structure was with some difficulty brought up to the surface and was found to consist of Meckel's diverticulum, the proximal portion being tightly strangulated by its distal portion which had become adherent, apparently, to the urinary bladder; this adhesion had to be divided in order to bring the diverticulum to the surface. The accompanying diagram shows the condition



A, Adhesion. M, Meckel's diverticulum.

that was found. The strangulated portion was distended with fluid and its surface was gangrenous, but it was removed without the fluid escaping. The stump after its removal was treated similarly to the stump left when removing the vermiform appendix, and the abdomen was closed without drainage.

For about three weeks from the time of the operation convalescence was uninterrupted, and the patient was about to leave the hospital when symptoms of acute obstruction of the small bowel came on rapidly. It appeared probable that obstruction had occurred at the point where the stump of the diverticulum had been closed by suture and on opening the abdomen this was found to be the case. Unfortunately, the patient's condition under the anæsthetic would only admit of a short operation, so the affected loop of bowel was brought outside the abdomen, secured to the abdominal wall, and opened at the point of stricture. The boy's condition improved slightly after the operation and he remained alive for nearly two months, but in spite of careful feeding by stomach and rectum he did not regain sufficient strength to admit of an attempt being made to re-establish the continuity of the bowel.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Primary Malignant Disease of the Vermiform Appendix.

A MEETING of this society was held on Feb. 27th, Sir RICHARD DOUGLAS POWELL, the President, being in the chair.

Dr. H. D. ROLLESTON and Mr. LAWRENCE JONES communicated a paper on Primary Malignant Disease of the Vermiform Appendix. They first reviewed the recorded cases in chronological order. Out of 62 reputed cases 42 were accepted as undoubted cases of the disease. Of these 42 37, or 88 per cent., were carcinoma and 17 of the 37 were spheroidal-celled carcinoma with an average age incidence of 24·2 years. The average age of five examples of primary columnar-celled carcinoma of the vermiform appendix, on the other hand, was 62 years, thus corresponding with the age incidence in carcinoma of other parts of the intestine. Primary spheroidal-celled carcinoma of the vermiform appendix was also peculiar in its structure and its benignant character, in both these respects resembling a group of cases of multiple primary carcinomata of the jejunum and ileum recently collected by Bunting. The morbid anatomy and nature of the primary malignant growths of the appendix were discussed at some length. The existence of a primary malignant growth in the vermiform appendix was often only discovered accidentally in the routine examination of the appendix removed during life or after death. The number of recorded cases had enormously increased of late years, 34 of the total number of 42 having been recorded since 1900. It was noteworthy that no less than 28 of the 42 had been recorded by American authors. The symptoms produced were those of appendicitis in one form or another, and it did not appear that the condition could be diagnosed correctly before operation. In 29 cases the symptoms were those of appendicitis and in four the condition was observed during operation on the female pelvic viscera. The results of appendicectomy were remarkably good, only four deaths following within two weeks of the operation, and of these only one operation was a simple appendicectomy. The operation required rarely exceeded that of appendicectomy; in three cases a portion of cæcum was removed, in one case some glands, and in two cases the entire cæcum. No mention could be found in the reports of any recurrence of the growth in the remaining patients. The growth was usually localised, in 48 per cent. in the distal third, and was rarely diffuse. The disease was not commoner in one sex than in the other. The connexion between inflammation and malignant change was briefly discussed. A stercolith was only mentioned as having been present in two examples.

Mr. W. MCADAM ECCLES described a case of Primary Carcinoma of the Vermiform Appendix. He said that he was asked on May 17th, 1904, by Dr. S. Verdon-Roe to see a young man, aged 18 years, with the following history. He had had one or two slight attacks of pain in the right iliac fossa during 1903 but was never confined to bed or even to the house by them. On April 6th, 1904, a more pronounced attack of pain supervened and there was much tenderness in the appendix region. He was seen by Dr. Verdon-Roe who found the temperature raised to 100° F. and a definite swelling in the right iliac fossa. The patient was kept in bed for 14 days, was then allowed up, and shortly afterwards went to a health resort on the south coast. A second sharp attack of pain occurred on May 12th, 1904.

Again the temperature was somewhat above the normal and there was distinct induration in the right iliac fossa. He remained in bed and no evidence of suppuration appeared, though the swelling persisted. When seen on May 17th his temperature and pulse were normal; all the pain had gone but there was marked tenderness in the right iliac fossa and an easily palpable, hard, resistant mass was present. As no symptoms indicating the necessity for an immediate operation existed it was agreed to defer laparotomy until May 25th. On that day a "split-muscle" opening was made over the mass, exposing the cæcum fixed by adhesions in the fossa, and behind it a hard mass which was clearly a diseased appendix. With some difficulty this was separated from the adhesions around and found to be an appendix one and three-quarter inches long, pointing upwards and outwards behind the cæcum. It was greatly thickened, having an external circumference of two and a quarter inches. One or two lymphatic glands were removed from the base of the appendicular mesentery but unfortunately these were not preserved for examination. The wound was closed in the usual manner and the patient made an uninterrupted recovery. When seen on Feb. 19th, 1906, he was perfectly free from any recurrence and quite well in health. When the appendix was cut through longitudinally there were two whitish patches in its walls, one at a spot about one-third its length from its cæcal attachment and the other a little more distal. These two patches were absolutely distinct from one another. They were taken to be probably of the nature of tuberculous deposits. There were no concretions within the lumen of the appendix. On microscopical examination, however, both the deposits proved to be spheroidal-celled carcinoma. This case was another example of an undoubted carcinoma of the appendix, primary in origin, and occurring in a male only 18 years of age. It was also of interest in that two separated foci of carcinoma existed. It was impossible to diagnose their existence before operation, the signs and symptoms being only those of a chronic appendicitis. It was satisfactory to note that the patient was in perfect health now, 21 months after the removal of the diseased organ.

Mr. T. JEFFERSON FAULDER quoted the case of a patient who had three attacks of apparent appendicitis. In 1902 the appendix was removed and was found to be infiltrated with columnar-celled carcinoma undergoing spheroidal-celled transformation. The patient made a good recovery and was now, four years after the operation, in good health. He commented on the fact that columnar-celled carcinoma undergoing spheroidal-celled transformation was, when it occurred elsewhere in the intestinal tract, regarded as actively malignant, whereas when in the appendix the growth did not seem to possess any great malignancy. He suggested that the growth should be regarded as an endothelioma.

Dr. G. NEWTON PITT said that lymphadenomatous tumours might occur in the appendix and that that might be the starting point of the disease. He asked whether the multiple nodules which were present in the appendix were in close proximity or opposite one another and suggested that infection might take place by direct contact. He commented on the small size of the cells in the growth and asked for an explanation of the spindle cells which were to be found in the mass.

Dr. H. S. FRENCH called attention to the small size of the growth and to the small size of the cells of which it was composed. He suggested that the appearance was not incompatible with an inflammatory condition of the lymphoid tissues. He asked whether the sections of the appendix growth in those cases in which there were metastases were similar to those in which no metastases were present.

Dr. ROLLESTON, in reply, said that it was of interest to note that in the first case he reported the appendix when first cut was thought to be tuberculous and in the case reported by Mr. Eccles the same appearance had been present. He raised a protest against the name endothelioma being used for any unusual form of carcinoma. An endothelioma was a growth derived from endothelial cells and was not necessarily malignant. He thought that the regular arrangement of the connective tissue and the uniform size of the cells were against the possibility of the growth being inflammatory in nature. Lymphadenoma had not been considered in the paper and the spindle cells which appeared in the mass of the growth he regarded as a portion of the alveoli.

MEDICAL SOCIETY OF LONDON.

The Treatment of Chronic Renal Disease.—The Diagnosis and Treatment of Tuberculous Pleurisy.

A MEETING of this society was held on Feb. 26th, Sir LAUDER BRUNTON, the President, being in the chair.

Dr. SAMUEL WEST read a paper entitled "Some Points in the Treatment of Chronic Renal Disease," remarking at the outset that he would limit his remarks to those points on which opinions were undecided or at variance. The treatment of chronic parenchymatous nephritis and granular kidney must be considered separately. Dealing first with chronic parenchymatous nephritis, which represented the results of an inflammatory process, the problem was how to promote the healthy growth of the renal cells. It was not until such cells had grown and become seasoned and resistent that recovery could be complete. For this purpose the body must be kept in as high a state of nutrition as possible and therefore the first question was how to modify the diet. The nutrition suffered if a purely milk diet were too long persisted in. The diet must be fortified and patients were often kept far too long a time on milk alone. At all times meat extracts and alcohol were to be avoided but why eggs in moderation should be excluded he could not understand, and there was no sufficient reason why white meat should be ordered and red meat always forbidden. Rapid improvement often took place when a more liberal diet was adopted. Confinement to bed and to one room was often too long insisted on. The health, especially of adults, suffered. If exposure and chill were avoided the open air treatment of these cases was beneficial. It was a mistake to make treatment depend entirely upon the albuminuria; that must be taken in conjunction with other urinary symptoms. The drug treatment of chronic parenchymatous nephritis should be of a general kind, modified only so far as the organs affected—i.e., the kidneys—required. In granular kidney the problems were different. This was a disease of insidious origin and of slow progress. The treatment would vary with the three stages of the malady. In the earliest stage it should be of a general kind. Much might be done, if the condition were recognised, to retard its progress. With care life might be enjoyable and active both in work and play; bathing, wading, over-exertion, and exposure should be avoided, but moderate regular exercise was desirable. In the middle stage, when the heart was markedly hypertrophied and the arteries were much thickened, treatment should be directed to prevent the accidents now liable to occur—viz., failure of the heart, rupture of vessels, and intercurrent inflammation of the kidneys. A hypertrophied heart was weak because its reserves were diminished. It must therefore be spared any strain. Digitalis, though useful for the heart, might increase tension. The indication for its use was when the tension was low. Citrate of caffeine was a useful cardiac stimulant, for it did not affect the vessels like digitalis. Rupture of vessels was difficult to guard against except by avoiding all strain, mental or physical. That granular kidney predisposed to acute nephritis was not generally recognised, yet it was a fact which had an important bearing in prognosis and was of theoretical importance as touching the relation which existed between acute nephritis and granular kidney. In the third, or latest, stage the symptoms were more pronounced. They were very variable and might point to any part of the body as the seat of mischief rather than the kidney. Difficulties in diagnosis constantly rose, especially in connexion with the nervous system. The association of generalised skin eruptions with granular kidney was discussed and its serious significance emphasised. Arterial tension varied greatly at this stage. A moderate rise was normal for granular kidney. Low tension must be raised by diet, stimulants, digitalis, ergot, and adrenalin. High tension must be reduced by modifying the diet, purgation, baths, and diaphoretics, also by nitro-glycerine and iodide of potassium. Pilocarpine was, Dr. West remarked, a most useful drug and unattended by any of the risks sometimes mentioned. It was very useful for the restlessness and sleeplessness or for threatening uræmia. As to hypnotics, cannabis indica was more useful than opium. Many of the symptoms suggested the possibility of the kidney having an internal secretion. This, however, could not yet be proved but good seemed to follow, in some cases, the administration of renal extracts. One of the practical difficulties consisted in the want of stable and trustworthy preparations.—

The PRESIDENT advocated the treatment of the heart in the middle stage of granular kidney by small doses of strophanthus which did not constrict the vessels like digitalis. If the arterial tension was unduly high 20 grains of nitrate of potassium with one grain of nitrite of sodium in a tumblerful of water every morning lowered the tension and could be continued for many years. The kidney had a double action of transforming hippuric acid into benzoic acid and *vice versâ*, and this suggested that the renal cells of different parts of the kidney had different actions. It might therefore be possible that "extracts" of different parts of the kidney had different physiological and therapeutic actions.—Dr. F. DE HAVILLAND HALL spoke of the advantage of a milk diet in renal disease and referred to a case in which the patient completely recovered under this treatment and passed as a first-class life for an insurance office. Three or four weeks' trial of milk diet should be made. He did not believe in giving butcher's meat too soon—poultry and fish were better. He quite endorsed Dr. West's views on the value of pilocarpine. One-sixth of a grain injected from time to time produced most favourable results. The question of the operative treatment for large white kidney by decapsulation was one of considerable importance. It had been done largely in America. Turning to granular kidney, which did not usually start before 40 or 50 years of age, Dr. Hall emphasised the serious significance of skin lesions. He had used strophanthus in combination with iodide of potassium. Headache could be relieved, when associated with high tension, by very small doses (one-third of a minim) of trinitrin, frequently repeated if necessary.—Dr. C. W. CHAPMAN remarked on the mental effect produced on a patient by his being told he had Bright's disease. Colchicum and iodide of potassium were useful for the pseudo-asthmatic attacks.—Dr. F. J. WETHERED referred to the practice occasionally adopted of flushing the kidneys with frequent draughts of hot water; he asked Dr. West his opinion on this procedure.—Dr. WEST, in reply, stated his belief that milk treatment was undoubtedly the best in the earlier phases of renal disease but he was convinced it was often continued too long. He was very sceptical about the benefit to be derived from the surgical operation for decapsulation. In regard to the age of onset of granular kidney it was most difficult to determine; probably many of the cases of so-called physiological albuminuria in early life went on, 20 or more years later, to granular kidney.

Dr. SIDNEY H. C. MARTIN read a paper on the Diagnosis and Treatment of Tuberculous Pleurisy which will be found *in extenso* at p. 586 of the present issue.—Dr. C. THEODORE WILLIAMS was convinced that a larger number of cases of pleurisy were tuberculous than was generally supposed. Dr. Hector W. G. Mackenzie's statistics showed that about one-third of all cases of pleurisy were tuberculous. In regard to diagnosis recurrence was undoubtedly an evidence of tuberculous pleurisy, but he had seen several such cases clear up very quickly for a time. Dry pleurisy was always suspicious of tubercle.—Dr. CHAPMAN asked whether movements of the diaphragm on an x-ray screen aided in the diagnosis.—Dr. WEST remarked on the relative frequency of tuberculous and non-tuberculous pleurisy. It was in this way that tuberculosis of the lung often started—namely, with pleurisy. He did not think that the rapid disappearance of the effusion was suspicious of tuberculous pleurisy. If, however, the fluid coagulated rapidly the case was more commonly tuberculous.—Dr. MARTIN doubted the older facts on which opinions had hitherto been based as to the relative frequency of tuberculous and non-tuberculous cases. An examination of the centrifugalised deposit from about 100 cubic centimetres of the fluid would give much more trustworthy data.

CLINICAL SOCIETY OF LONDON.

Three unusual cases of Intestinal Obstruction.—Appendicitis due to Oxyuris Vermicularis.—Abscess of the Appendix complicated by Hæmorrhage.

A MEETING of this society was held on Feb. 23rd, Mr. H. H. CLUTTON, the President, being in the chair.

Mr. JAMES SHERREN read a paper on three unusual cases of Acute Intestinal Obstruction. The first case was that of a man, aged 31 years, who was admitted with the diagnosis of gastric ulcer. On operation, however, the case was found to be one of stricture of the small intestine. Enterostomy was performed and three weeks later enterectomy. The patient ultimately recovered. The second case was one of strangulated left duodenal hernia occurring in a girl, aged 13 years, who was admitted to Poplar Hospital two hours after the onset of acute intestinal obstruction. No symptoms of chronic obstruction had preceded it. Seven hours after the onset laparotomy was performed and the hernia was reduced after division of the neck of the sac. The patient made a good recovery. Mr. Sherren had found records of ten similar cases, of which four had recovered. The third case was one of volvulus of the cæcum occurring in a man aged 31 years, who was admitted to the London Hospital 12 hours after the onset of acute abdominal symptoms. Operation was performed 17 hours after onset. After reduction the outer part of the cæcum was found to be gangrenous; the cæcum was resected and lateral anastomosis of the ileum to the ascending colon was effected. This patient also recovered. 57 cases of the same kind had been collected by Mr. Edred Corner and Mr. P. W. G. Sargent who had recorded five of their own.—The PRESIDENT remarked on the importance of the subjects dealt with. Stricture of the small intestine and volvulus of the cæcum were both rare conditions. He referred to two cases of intestinal volvulus which became gangrenous; in one of them the intestine was full of threadworms. Volvulus, he believed, was usually fatal.—Mr. JONATHAN HUTCHINSON, jun., referred to a case of volvulus of the cæcum in which a loose mesentery of the cæcum and colon also existed, as in the case referred to by Mr. Sherren, due to complete rotation of the cæcum and part of the adjacent intestines, the cæcum twisting round beneath the small intestines so that it was found in the neighbourhood of the spleen. Considerable difficulty existed at the operation, but ultimately the patient made a good recovery. Such cases always seemed to depend on an abnormality of the attachments of the cæcum and ascending colon.—Mr. RAYMOND JOHNSON referred to a case of volvulus of the cæcum in a man, aged 49 years, under the care of the late Mr. Marcus Beck. The symptoms were those of intestinal obstruction. A hernia also existed; this was reduced but as the symptoms persisted laparotomy was performed by opening up the inguinal canal. The twist of the cæcum was found to be from left to right. The patient succumbed 12 hours later. Here the mesentery of the cæcum was of extreme length, as in the cases mentioned by previous speakers.—Mr. W. G. SPENCER referred to a case which had presented symptoms of an obscure kind for ten days. Operation was not performed till somewhat late. The cæcum was found to be in a condition of volvulus and adjacent to the spleen.—Mr. A. E. J. BARKER had not seen cases of volvulus of the cæcum, but, referring to other cases of volvulus, he agreed with the President in the view of their being usually fatal. He narrated a case in which the whole of the small intestine was involved. A certain proportion of these cases of volvulus recovered. He speculated as to the cause of stricture of the small intestine and suggested that it was often due to a previous strangulated hernia which had been reduced by operation.—Mr. SHERREN replied.

Mr. H. W. CARSON communicated a paper on two cases of Appendicitis associated with the Presence of Oxyuris Vermicularis. The first case was that of a single woman, aged 19 years, who on the day before admission had been seized with violent abdominal pain and vomiting. The temperature was raised to 103° F. and a rigor had occurred. On admission the temperature was 103·8°, the pulse was 116, and the respirations were 32. Superficial tenderness was marked over the right side of the abdomen and the right loin. The appendix was removed and a single oxyuris vermicularis was found, the mucous membrane of the distal half inch being much congested but not ulcerated. The patient recovered. The second case was that of a married woman, aged 24 years, who was admitted on the second day of an attack characterised by severe abdominal pains and vomiting. The temperature was 100·6°, the pulse rate was 118, and the respirations were 28. Severe pain was complained of in both iliac fossæ and there was much tenderness on examination, especially in the pelvis. At the operation three thread-worms were found in the appendix. There was no injection or ulceration of the mucous membrane. Marked hyperæsthesia was present in both of these cases. In neither case was there any history of thread-worms, nor had thread-worms been seen in the motions since operation. Mr. Carson contrasted the course and symptoms of those two cases with ordinary cases of

appendicitis and discussed the question of the relation of the appendicitis to the presence of the parasites. There was no doubt oxyuris could exist in the appendix without giving rise to symptoms. He referred to Dr. G. F. Still's paper on 200 necropsies of children under 12 years of age in which the oxyuris had been found 25 times in the appendix without symptoms, and he had reported 13 cases in which the appendix had been found to contain thread-worms after removal for appendicitis. He expressed the opinion that it was more reasonable to believe that the appendicitis in these cases was due to the presence of the thread-worms than to believe that their presence was merely a coincidence.—The PRESIDENT thought that the evidence would have been more conclusive if the operation for appendicitis had been performed within 24 hours. He did not think that the presence of worms had much to do with the production of appendicitis.—Mr. HUTCHINSON had seen a case in which the appendix was stuffed full of oxyurides. It was very rare to find these worms in an appendix.—Dr. W. H. B. BROOK (Lincoln) raised the question of early operation in cases of appendicitis. The majority of cases recovered from their first attack of appendicitis and could be operated on later. It was no doubt desirable to operate early, but it was difficult to persuade the patients and their friends.—Mr. CARSON replied.

Mr. J. D. MALCOLM narrated a case of Appendix Abscess complicated with Severe Hæmorrhage. The patient was a woman, aged 36 years, in whom a foul appendix abscess was evacuated and drained on the ninth day of the illness. On the third and sixth days after the operation there were severe hæmorrhages from the abscess cavity; the second occasion resulted in unconsciousness from collapse. The wound was opened up and much clot was removed, but no fresh bleeding occurred and the appendix was not found. The cavity was packed with gauze and healed soundly by granulation. Instances of hæmorrhage from the bowel associated with appendicitis and three cases resembling the one related were referred to. The complication was attributed to a sloughing action induced by some micro-organisms developed in the bowel and was compared to the secondary hæmorrhage of the days before antiseptics were introduced.—The PRESIDENT agreed with the explanation offered that sepsis was the main cause. He had had hæmorrhage in cases of appendectomy five days after the operation, the temperature, however, being normal; here the cause of the hæmorrhage was certainly obscure.—Mr. SPENCER recalled the researches of Professor E. Klein, who had discovered an organism which he had named streptococcus hæmorrhagicus, and which Mr. Spencer suggested was almost surely the cause of such cases. Three instances of hæmorrhage associated with cellulitis were mentioned by way of illustration.—Mr. RAYMOND JOHNSON referred to the case of a boy, aged 17 years, in whom hæmorrhage had supervened on appendectomy; the cause in this instance was the extension of suppuration into an artery.—Mr. CHARTERS J. SYMONDS asked how the wound was drained. A great deal depended on the treatment of the abscess cavity and whether it was packed very thoroughly. He had seen the external iliac artery and vein opened by the suppuration.—Mr. HUTCHINSON referred to a series of cases that had been reported in which involvement of the external iliac artery and vein led to hæmorrhage before opening the abscess. He was no believer in stuffing the cavity of the abscess with gauze.—Mr. F. C. WALLIS was a strong believer in firmly packing the abscess cavity and cleaning it as thoroughly as possible at the time of the operation by peroxide of hydrogen or iodoform. The packing should be left in for three or four days.—Mr. MALCOLM replied.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Dr. J. W. Ballantyne, the President, being in the chair.—Dr. N. T. Brewis, the previous president, gave an address in which he reviewed the work of the society during the past two sessions and gave a summary of the specimens which are a special feature of the meetings.—Dr. E. W. Scott Carmichael read a paper on a Plea for Operative Interference in Cerebral Hæmorrhage in the Child resulting from Dystocia. Cases of cerebal palsy were amongst the most distressing of the cases that came to a children's hospital for relief. Little first described the signs and symptoms in the middle of last century. Its treatment was most unsatisfactory to the physician and the surgeon was called in to remedy the deformities. Division of the tendons and arthrodesis of joints might improve the general appearance of the limbs and of the patient, but only slightly made his condition better than the general paralytic, and in many cases there was no improvement at all. They naturally looked for the most satisfactory method of combating the disease by interfering at an earlier stage. A large number of cases of cerebral palsy were traumatic in origin. Sarah McNutt demonstrated the nature of the lesion and its pathology on children who were stillborn or who had died shortly after birth and showed its association with the clinical signs and symptoms described by Little 20 years before. It had been frequently demonstrated that the hæmorrhage in these cases was meningeal in origin; it might occur on the surface or at the base. On the surface it was generally bilateral and was most considerable over the central region and towards the middle line; hæmorrhage at the base was generally in the posterior fossa beneath the tentorium cerebelli, surrounding the pons and medulla. Basal hæmorrhages were more liable to occur in vertex presentations, while intense extravasation over the cerebral hemispheres occurred in breech cases. When the hæmorrhage was at the base most of the children died at, or immediately after, birth, while the cortical gave rise, if the children survived, to the varying degrees of spastic paralysis. The results varied according to the locality of the main part of the extravasation which exerted pressure on, and caused atrophy of, the brain substance. This might produce paralysis by pressure on the motor areas, or varying degrees of amentia or feeble-mindedness by pressure on other parts of the cerebrum. These cases had usually been born after difficult labours, but though in many cases forceps had been used the lesion could not be looked upon as having been caused by the instrument but rather by the conditions which rendered its use necessary. Some cases seemed to result from a precipitate labour from the rapid birth of a soft and easily compressible skull. Prolonged cranial compression during labour was a common cause of the hæmorrhage but the most frequent cause was asphyxia. Paralytic signs were often not noticed at first, but attention might be attracted to difficulty of swallowing or the immobility of an arm or leg, or of both. A frequent symptom was convulsions, general or local, which were often accompanied by persistent rigidity and inversion of the limb. A most important sign was bulging of the anterior fontanelle which was often firm and non-pulsating. Œdema of the eyelids and proptosis were recorded in one of Cushing's cases. The hæmorrhage was usually of venous origin from the small veins of the cerebral cortex which run into the longitudinal sinus. If there was the least doubt about the diagnosis Cushing recommended lumbar puncture, as the cerebro-spinal fluid was often blood-stained in cases of meningeal hæmorrhage. Cushing had operated on four cases in all of which extensive subdural hæmorrhages were present and when the general condition of the child was critical. Two of these recovered from the operation and immediately began to improve. The remote results were obviously difficult to estimate. The operation consisted in an osteoplastic resection of the skull to expose a large portion of one or both cerebral hemispheres, the washing away of all extravasated blood from the cerebral cortex, and the replacement of the osseous and soft tissues flap. Children bore operations on the skull relatively extremely well compared with adults.—Dr. D. B. Hart, Dr. A. H. F. Barbour, Dr. W. Fordyce, and the President discussed the paper and Dr. Carmichael replied.—Dr. Fordyce read notes of a case of Pregnancy in a Bicornuate Uterus. He was called to see a patient, aged 28 years, in order to remove a polypus from the dilated cervical canal. She had been married three years; before marriage she had menstruated each month rather freely without pain. 15 months after marriage she had a three months' abortion. She did not know that she was pregnant as she had not ceased to menstruate. She afterwards menstruated regularly till the month before Dr. Fordyce saw her, when she had another severe flooding. On examination he found a soft polypoidal mass of about the thickness of a man's thumb projecting through the external os; the finger could not reach the base of attachment. The uterus was lying to the left side and felt slightly enlarged. To the right side and closely attached to it was a well-defined globular swelling of about the size of a closed fist; this swelling was not fluctuating but was of a doughy consistence. Two or three days afterwards the patient was seized with severe pain and expelled a three and a half months' abortion. On examination the polypus could still be felt but retracted. Three days afterwards Dr.

Fordyce removed the polypus, finding the dilatation of the cervix easily accomplished. The polypus was attached high up and its removal was accomplished piecemeal owing to its friability. After the operation on careful examination he found that the body to the right side had an opening into the cervix. On introducing the finger he found that it was hollow and contained a small piece of placenta which was removed. It thus was evident that this was a uterus bicornis unicollis, that the ovum had been situated in the right horn, and the polypus in the left. The bifurcation extended down to almost the internal os. After recovery both lobes of the uterus seemed equally developed. The polypus on microscopical examination seemed to be composed almost entirely of decidual cells.—The President and Dr. Barbour made remarks on the paper.

CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on Feb. 20th, Dr. J. Barry Ball, the President, being in the chair.—Mr. Harold S. Barwell read a paper on Surgical Treatment in Tuberculous Laryngitis. He said that tuberculosis in the larynx was difficult to treat, because it was somewhat inaccessible and complete immobility could not be obtained, but especially because it chiefly occurred at a late stage of pulmonary tuberculosis and because its occurrence showed that there was a tendency to dissemination of the tuberculous process. Operative measures, except to relieve symptoms, were contra-indicated in all cases of advanced or rapidly progressing lung disease. But the disease also occurred more often than was generally known in the early stage of pulmonary tuberculosis, it was usually then not extensive and could often be cured by pigments and curettage, but if more advanced the lesion should be boldly attacked with punch forceps and in rare cases by thyrotomy. In the intermediate class of chronic consumptives much difference of opinion as to active treatment existed, but in many cases local healing could be obtained by surgical treatment and in less favourable cases the very painful death from the laryngeal lesion prevented. After detailing the technique a new punch forceps designed to remove the epiglottis in one piece was described and several cases of healing were recorded. But such cases of healing of advanced lesions were exceptional and it was for the palliative treatment of dysphagia that surgical intervention was most often required. Here anodynes were of little value and removal of even a small piece of infiltrated arytenoid always relieved, and usually abolished, this painful symptom. Removal of the diseased epiglottis had a remarkably good effect in such cases and he had performed this operation eight times in the last year, in every case relieving the severe dysphagia and obtaining a complete local cure in one case. No patient should be allowed to die from this most distressing symptom without an attempt to relieve his sufferings by this rapid and almost painless operation.—Dr. Eric Pritchard read a paper on the Training of Nerve Centres in Children. He maintained that the lower nerve centres which presided over the organic functions were amenable to educational discipline in the same way that the intellectual and higher cerebral centres both in degenerate children and in those of superior intelligence could be improved in functional efficiency by appropriate teaching. He suggested that in the physical training of children, whether the training was for the purpose of improving the motor, digestive, circulatory, or other organic functions of the body, attention should be directed towards the promotion of efficient and regular habits in nerve centres and that they should discount considerations of the organs themselves, which were merely the servants of the central nervous administration. Nerve cells were the only elements in the reflex arc which were capable of training or of profiting by past experience; in fact, they had a sort of subconscious memory which enabled them to repeat more or less accurately the parts they had played before. It was therefore of the utmost importance that, when in infancy or childhood a nerve centre came into activity for the first time, its initial acts should be performed in an orderly and efficient manner, for its subsequent behaviour would depend on the way in which these were carried out. Too much attention could not therefore be bestowed on the early training of these centres and to this end certain principles should be observed. Firstly, they should be educated in the natural order of their development; when forced out of their due order neuroses were liable to supervene, as, for instance, when a child was artificially taught the finer muscular coördinations before he had acquired control of the coarser muscular movements. Secondly, owing to the impressionability of developing nerve centres, supermaximal stimulation should be avoided, otherwise these centres would explode with great violence and the energy liberated would overflow to contiguous centres. Thus over-stimulation of the centres which presided over the functions of gastric digestion by the presence of too heavy a curd of casein in the stomach might, and often did, cause general convulsions. The disturbance of equilibrium thus engendered in the gastric centres would interfere seriously with the processes of digestion in the future. All nerve centres should be trained in a school of graduated stimulation, commencing with that which was weak and proceeding to that which was stronger. The sensitive nerve mechanism which presided over the motor functions of the bowels was frequently completely deranged in infancy by the employment of powerful purgatives, enemata, or glycerine suppositories; these powerful stimuli dulled the sensibility of the nerve centres concerned in the act of defæcation to such an extent that the presence of fæces in the colon or rectum was subsequently an insufficient stimulus to produce an action of the bowels. Thirdly, owing to the inherent tendency of nerve cells to assume periodic or rhythmical habits of activity, it was of importance that the periodicity of organic functions, such as those of digestion, defæcation, sleep, &c., should be of a physiological character and favourable to the well-being of the individual. Regularity in these habits in later life depended on the nature of their early education. Neurotic and degenerate children were difficult to train for the reason that their nerve centres either exploded on very slight stimulation or else easily became exhausted and refused to respond at all; such children should be educated in an environment of subminimal stimulation.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on Feb. 16th, Mr. A. H. Tubby being in the chair.—Mr. J. Howell Evans showed three cases: (1) Meningocele Occipitalis; (2) Meningocele Lumbo-sacralis; and (3) Thyreoglossal Appendage, and these were illustrated by a lantern demonstration.—Dr. F. J. Poynton read a paper on two cases of Jaundice in Children. Persistent jaundice in infancy was such a dangerous symptom that these two cases which had come to his notice in the last two years were, he thought, of practical interest. The first case was that of a female infant, aged three months. She was then distinctly jaundiced and had been so since birth. The conjunctival mucous membranes and skin were yellow, the motions as a rule were undigested and white, and the urine was very dark. The second case was that of a boy, four weeks old, and the first child. No cause at all was forthcoming for the jaundice, which had appeared upon the third day and was found to have persisted.—Dr. E. Cecil Williams read notes on a case of Splenomegalic Biliary Cirrhosis in a boy, aged six and a half years. Dr. Williams regretted that it was impossible for him to show the society his patient but he hoped that the photographs which he exhibited might convey some idea of the hepatic and splenic enlargement. There was a doubtful history of paternal syphilis. Three years ago the child was jaundiced and was said to have an enlarged liver. On admission to the Bristol Children's Hospital the conjunctivæ were yellow and the rest of the body had a lemon tint. There were a few petechiæ on the legs. That this was an example of the juvenile type of splenomegalic biliary cirrhosis seemed to Dr. Williams to be fairly certain. Clubbing of the fingers and toes was a much more constant symptom in this form than in the adult type.—Dr. F. Langmead showed three specimens of Tuberculous Ulceration of the Stomach. 1. A female child, aged eight months, was admitted for whooping-cough. She developed signs of pulmonary consolidation and died two months after admission. Post mortem there was found general tuberculosis. The stomach was not dilated. On its anterior wall were six shot-like submucous tubercles, each capped by a tiny ulcer, and two more were situated on the greater curvature. 2. A male child, aged one year and 11 months, was admitted for whooping-cough and bronchitis and died a few weeks later. Post mortem there was found at the middle of the anterior wall of the stomach, about half-way between the cardia and pylorus, a small tuberculous ulcer, stellate in appearance, surrounded by a slightly raised and rolled edge. 3. A male child, aged seven months, was admitted in a collapsed condition with a history of five months' "croupy cough" and wasting. At the necropsy, near the greater

curvature of the stomach and midway between the cardia and pylorus, were noticed two small ulcers with flat, slightly raised edges.—Mr. W. Gifford Nash showed a case of Symmetrical Alopecia Areata Neurotica accompanied by a Bullous Eruption on the Face. The patient was a girl, aged 14 years, and was seen on Nov. 13th, 1902. The history was that on Nov. 7th a lock of hair along the course of the right supra-orbital nerve fell out and on the 11th blister-like spots began to appear on the face. Two years previously she had suffered from similar spots on her face and hands. These had occurred over a period of some months and had left brown stains. As already stated, the first patch of hair to fall out was along the course of the right supra-orbital nerve. Ten days later a similar bald patch suddenly appeared on the left side. This affection was classed by Crocker under alopecia areata neurotica var. localis.—Mr. Nash also showed two cases of Renal Calculus in children under ten years of age. The first patient was a boy, aged eight years, with a history of abdominal pain and frequency of micturition since an early age. The left kidney was exposed by a lumbar incision and a stone was felt in its pelvis. The cortex was incised and a stone weighing 30 grains was removed. Seven small calculi were washed out of the kidney. The second patient was a boy, aged four years, with an indefinite history of renal calculus. But there was one definite piece of evidence. Three skiagraphs were taken and in each, in the region of the left kidney, was a very distinct shadow. Exploration of this kidney was decided on and the kidney was first exposed and then brought out of the lumbar incision. The stone, which was felt lying in the renal pelvis, was seized with a pair of forceps and delivered with some difficulty owing to its peculiar flat shape. Then followed a continual welling up of venous blood from the kidney. The child was rapidly becoming exhausted from the loss of blood so Mr. Nash decided to remove the kidney. The stone removed consisted of uric acid and weighed 25 grains.—Dr. A. Ernest Jones showed a case of Parenchymatous Goitre in a girl, aged six years.—Dr. George Carpenter showed a case of Scurvy. The infant, aged ten months, was slightly rickety, a trifle anæmic, and showed hæmorrhagic gingivitis; there was subperiosteal hæmorrhage of the left tibia. The urine contained albumin and blood casts but was free from other casts. The patient had been fed on patent foods.—The following gentlemen took part in the discussion of the papers and cases: Dr. Chapman, Mr. A. H. Tubby, Mr. G. Pernet, Dr. Frederick Taylor, Mr. Drew, Dr. Fisher, Mr. W. Milner Burgess, Dr. J. Porter Parkinson, and Dr. Sutherland.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 21st, Mr. T. J. Dabell, the President, being in the chair.—Dr. F. H. Jacob read notes of Two Cases of Nævus treated with Radium. In each case the lesion was more than a port-wine stain—in fact, something of a tangible nature. The cure was complete, with a scarcely noticeable pale scar and a marked depilatory effect on the hairs of the eyebrow where the treatment had been applied. Photographs of the subsequent condition were shown.—Mr. A. R. Anderson (in continuation of a paper read a year ago) read notes of a Second Series of Cases of Gastro-enterostomy, based on 18 cases operated on within the last 14 months. The cases fell into four divisions—four of gastric carcinoma (generally old-standing and extensive), seven of chronic ulcer, four of acute or subacute ulcer, and three of pyloric stenosis. Exactly half were men and half were women. All had made good recoveries with the exception of one patient who died suddenly from chloroform anæsthesia after the completion of the operation. The abdominal wound was immediately reopened and the heart was massaged through the diaphragm but without success. Even in the cases of cancer great relief had been afforded by the operation which had been followed by marked increase of weight. Of the non-malignant cases all had benefited by it but in two cases where the symptoms of ulcer were less pronounced the relief afforded was not so great and the pain had not wholly disappeared as the sickness and hæmatemesis had done. In each of these two cases only a small indurated patch was discoverable at the operation, probably occupying the site of a small chronic ulcer but very difficult to detect. The operation was therefore justifiable wherever medical treatment had failed. It was pointed out that in the cases of cancer the history extended over four, six, eight, or more years and it was fair to assume that the ulcer was originally simple and that a cure might have resulted from operation in this stage. As regards technique the anastomosis was made by a double continuous suture of silk or celluloid thread. Clamps were not used. In no case had any symptoms of regurgitant vomiting occurred. At the end of 24 hours small doses of peptonised milk were given and in three weeks the patient was able to take the ordinary mixed hospital diet and to go home. Several of the patients were then shown and points of individual interest were alluded to.—Dr. Jacob laid stress on the value of a careful examination of gastric contents; the blood changes, too, were practically identical with those of pernicious anæmia.—The discussion was continued by the President, Dr. J. H. Johnston, Mr. T. D. Pryce, Dr. A. J. Sharp, Dr. W. T. Rowe, Mr. A. R. Tweedie, and Mr. W. B. Blandy.—In replying, Mr. Anderson stated that in cases of cancer it was no misuse of terms to say that if the patient survived the operation great relief was to be expected rather than hoped for. Cases simulating perforation were explicable as due to severe gastric cramp or colic, where nerve filaments were exposed in the floor of the ulcer. Such cases might show the anxious expression, abdominal rigidity, and severe pain so suggestive of perforation, but the rapid pulse of 120 or more was usually confined to the genuine perforative cases, at any rate where some interval had elapsed. There was no fear of the anastomotic opening contracting or closing, provided it was from two and a half to four inches long in the first instance; no mechanical aids such as bobbins or buttons were used and the mucous membrane was accurately united to mucous membrane all round, so that no submucous or muscular tissue was left exposed. The results were equally good whatever the exact position of the ulcer, but it was in cases of pyloric stricture due to healed ulcer that the most striking improvement followed all round.

DERMATOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Feb. 14th, Mr. Malcolm A. Morris being in the chair.—Dr. H. Radcliffe Crocker showed a case of Pemphigus Foliaceus in a woman who had shown the first symptoms of the disease last April. She had at the present time pronounced exfoliation of the epidermis in large flakes, the face, arms, legs, and trunk being extensively affected. The buccal mucosa was free and there were no intestinal symptoms. Actual bullæ had not been seen by the observer but it was probable that these had been present. The condition was progressing and the woman was distinctly ill.—Dr. J. M. H. Macleod showed a case of Tuberculous Disease of the Skin in a child who had had measles 12 months ago and some three months after had developed several patches of lupus on the leg and foot. There had been chilblains on the pinna of the right ear and in this position there was now deep ulceration which was also probably tuberculous. The rapid development and the apparent connexion with the preceding attack of measles rendered this case interesting.—Dr. E. Graham Little showed a case of Granuloma Annulare (Radcliffe Crocker) in a man, aged 40 years, the characteristic ringed eruption, preceded by isolated nodules, having been noted by the patient for about three years. At the present time there were rings of this nature on the fingers (dorsal surface), on the wrist, elbows, and neck, with larger indurated patches on the knees which had probably been of the same character in an earlier stage. The man was a very free sweater. There were no papules that could be considered like those of lichen planus on any part of the body and the mouth showed no lesions. A section of the skin from one of the patches was exhibited at the meeting and showed a most unusual infiltration of the corium with cells the character of which was as yet undetermined.—Dr. J. J. Pringle showed a case for diagnosis of an Eruption on the Upper Right Eyelid of a man, aged 32 years. The eruption consisted of a number of small, apparently firm nodules, some of them coalesced to form a raised patch, of a vivid pink colour and unattended by any subjective symptoms. The disease had lasted for 12 months. Some of the papules were grouped in a manner suggestive of lymphangiectodes, which was one of the diagnoses suggested, but the small swellings certainly did not appear to be vesicular and no definite diagnosis was offered in the absence of microscopical examination.—Dr. Henry Waldo showed a patient who had been under his care in the infirmary at Bristol for some time with a large Infiltrated Patch on the Skin of the Back on the Right Side. The patient stated that this had persisted for ten years. The amount of infiltration had suggested the diagnosis of

mycosis fungoides. A majority of the members present considered, however, that it was probably a tertiary syphilitic infiltration of unusual chronicity.—Dr. Arthur Whitfield showed a circinate erythematous patch on the leg of a woman which he considered a rare form of syphilide. The patient had a definite history of syphilis, contracted 13 years ago, and had been under the care of the exhibitor for syphilitic manifestations for some time. The present eruption had remained unaltered for five weeks and the indolence and induration of the patch suggested the diagnosis of syphilis, in which most of those present concurred.

ROYAL ACADEMY OF MEDICINE IN IRELAND: SECTION OF STATE MEDICINE.—A meeting of this section was held on Feb. 9th, Dr. F. C. Martley, the President, being in the chair.—The President delivered an address on the Death-rates of the United Kingdom, explaining how the crude death-rate had to be corrected for age and sex distribution. For every 100 deaths that occurred in the United Kingdom as a whole, in Ireland amongst males only 92·6 took place and in England and Scotland 100·9 and 101·7 respectively; while in the case of females the corresponding figures were 107·1, 98·7, and 102·5, thus showing how the male and female death-rate of Ireland differed so widely, not only from the rates of the other kingdoms, but also from each other. In the same way the male death-rates for the different counties of Leinster were compared with those of the divisions of England and it was found that the south midland division had a better index of morbidity than the lowest of the Leinster counties; but what was still more noticeable was that the figure for Dublin reached the enormous height of 172·8, while in London it was only 110·7.—Sir John W. Moore read a paper entitled, "Compulsory Revaccination: the Solution of Vexed Questions relating to Small-pox." He commenced by drawing attention to the difficulties which beset sanitary authorities who wished to make provision for the treatment of small-pox arising in their districts and referred to legal cases—one in England and one in Ireland—where application had been made before a judge to grant an injunction restraining the sanitary authority from erecting such hospitals on the ground that they were likely to spread small-pox by aerial convection. In the English case the judge had refused—owing to the contradictory expert evidence—to give a judgment, while in the Irish case the injunction had been granted as regards small-pox, but this judgment was afterwards reversed by the High Court on appeal. He then discussed the question as to whether the infection of small-pox was carried through the air and expressed his belief that it was. He next went on to show that efficient vaccination and revaccination were the real solution of this question and pointed out that in the experience of Germany, where vaccination and revaccination were compulsory, the number of persons susceptible to the poison of small-pox was so small that there were practically no special hospitals for the treatment of that disease and he therefore held that if vaccination and revaccination were made compulsory in the United Kingdom there should be no need for special small-pox hospitals.—The President said that nobody who studied the question from a scientific standpoint could possibly have any doubt as to the efficacy of vaccination in the prevention of small-pox and further expressed himself as agreeing entirely with the opinions held by Sir John Moore.—Dr. H. U. Byrne, speaking as a public vaccinator, said that he had some doubt as to whether the number and depth of the scars of primary vaccination were any guide as to the amount of protection enjoyed by the person.—Sir John Moore, in his reply, expressed the opinion that it would not be wise at present to advocate the bringing in of a Bill in favour of compulsory revaccination, although no opportunity should be lost of impressing on the public the value of revaccination as a preventive of small-pox and the necessity for it at or about the age of 12 years.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 16th, Dr. W. K. Hunter, Vice-President, being in the chair.—Dr. J. C. Renton showed the following cases: 1. A man on whom he had performed Laminectomy three years ago for Pott's Disease. Before operation the patient suffered from paraplegia, with loss of sensation and retention of urine. He had also increased knee reflexes and ankle clonus. There was decided posterior curvature of the spine, as shown by photograph. Extension was tried for three months without effect. Three of the spinous processes and laminæ were removed and the cord was exposed. Sensation returned in a fortnight. In a year he could walk and had complete control over the bladder and the rectum. 2. A boy, aged ten years, who had suffered from Acute Osteomyelitis. The tibia had been trephined in three places and renewed by grafts of bone. 3. Three patients whom he had operated on for Ruptured Gastric Ulcer. 4. A Completely Ruptured Right Kidney removed from a youth, aged 17 years, after an accident at football. The case progressed favourably. 5. Three cases where excellent results and control over the sphincter ani had followed Kraske's Operation for Malignant Disease of the Middle Portion of the Rectum. 6. Two cases of Excision of the Gasserian Ganglion.—Dr. C. C. Cuthbert showed a case of Ludwig's Angina. After slight sore-throat and pain in the right ear a swelling had appeared externally behind the angle of the right lower jaw. This increased rapidly, extending to the opposite side and downwards to below the level of the cricoid. The face was œdematous and the mouth could only be opened to the extent of half an inch. A hard swelling in the floor of the mouth pushed the tongue upwards. Swallowing was difficult and dyspnœa was present. During the administration of chloroform the breathing stopped and as artificial respiration was of no avail tracheotomy was performed. When the tube was introduced half an ounce of pus was coughed up and respiration was re-established. Free incisions were then made into the brawny swelling. Only a little pus was found but the tissues were black and sloughing. For some days pus was frequently coughed up. A number of sloughs were discharged from all the wounds. Secondary hæmorrhages were frequent and an attack of erysipelas supervened. The wounds healed by granulation. Dr. Cuthbert pointed out the danger of a general anæsthetic in such cases as, owing to the patient's inability to open the mouth, the presence or absence of an abscess pointing into the pharynx could not be ascertained. Although a large quantity of pus had escaped into the trachea there had been no involvement of the lungs.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 20th, Mr. W. Handcock, the President, being in the chair.—Dr. A. Bronner read notes of Three Cases of Mastoid Disease with Unusual Symptoms.—Dr. W. E. Heilborn showed (1) A Case of Severe Rickets with Radiograph; and (2) a Case of Torticollis and Secondary Lateral Curvature of the Spine, (?) due to High Cervical Caries.—Dr. W. Mitchell showed a New Truss for Moveable Kidney.—Dr. R. A. R. Lankester read a paper entitled "An Observation in Operations on the Gall-bladder." He pointed out that when the liver was being manipulated so as to bring the ducts into view the temporary shock to the patient was out of all proportion to the severity of the operation. He thought this partly due to the manipulation of so large and important an organ as the liver and partly to the traction on the great plexuses in that region caused by the eversion of the liver.—The paper was discussed by Mr. T. J. Hall, Dr. Wood, Dr. Heilborn, Dr. W. H. Horrocks, and Dr. T. W. Hime.—Dr. Lankester replied.—Dr. J. Metcalfe read a paper on Exact Dosage in Radio-therapeutics. He pointed out how important it was to get an exact dose in dealing with x rays, perhaps even more so than in dealing with ordinary drugs. This was the only way in which the dreaded dermatitis could be avoided. He then went on to explain the methods of obtaining exact dosage.—The paper was discussed by the President, Dr. Horrocks, Mr. R. Mercer, Dr. R. H. Crowley, Mr. Lodge, and Dr. Mitchell.—Dr. Metcalfe replied.—Dr. Crowley read a paper on "Underfeeding," its Significance and Relative Importance to the Individual and to the Community.—The paper which dealt very fully with the question, more especially from a medical and scientific point of view, was fully discussed.—Dr. Crowley replied.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on Feb. 12th, Professor Robert Muir, the President, being in the chair.—Dr. R. M. Buchanan gave a demonstration of specimens from a case of Kala-azar in a European, microscopic sections and lantern pictures being shown. The demonstration was introduced by a short historical account of the Leishman-Donovan body and of its relationship to kala azar and Delhi sore. The specimens were obtained from a man invalided home from Assam who, after having been in London, where he was seen by Sir Patrick Manson, was under the care of Dr. J. C. Renton and Dr. R. O. Adamson in

Glasgow and died in September, 1905. The liver and spleen were both much enlarged. Smears were prepared from these organs and showed the presence of the parasites which were also found in the sections of the liver and spleen. The nature of the parasite and the mode of its transmission were fully discussed.—Dr. J. K. Kelly read notes of a case of Chorio-epithelioma. The patient was a young married woman who was admitted to the Glasgow Royal Infirmary on July 11th, 1905. She had had four children, the last of whom was born eight weeks before admission. Her former labours had been normal. Since the birth of the last child she had suffered from profuse hæmorrhage, while during the later months of pregnancy there had been several attacks of severe bleeding. On admission she was very thin, pale, and exhausted. In the anterior vaginal wall two nodules at different levels were made out and at the left side of the vagina there was an irregular tumour projecting slightly above the surface and showing small dark cystic portions. On the twelfth day after admission the patient developed hemiplegia on the right side and died five days later.—Dr. Charles Workman read notes of the post-mortem examination. Tumours were found in the uterus, vagina, and both ovaries, and secondary nodules were found on the heart wall, lungs, spleen, left kidney, and brain, the last-mentioned situation being an uncommon one. The liver was entirely free from tumour formation.—Dr. James H. Nicoll showed photographs of a large Teratoma of the Tongue which he successfully removed from a young child. He regarded the condition as an example of the inclusion of a blighted twin.

Reviews and Notices of Books.

The Principles and Practice of Medicine. By WILLIAM OSLER, M.D. Oxon., F.R.S., F.R.C.P. Lond.; Regius Professor of Medicine, University of Oxford; Honorary Professor of Medicine, Johns Hopkins University. Sixth edition. London: Sidney Appleton; New York: D. Appleton and Co. 1905. Pp. 1143. Price 21*s.* net.

BY reason of the incisive and lucid style in which it is written and of the comprehensive manner in which it treats of disease Professor W. Osler's book has achieved a well-established position as a standard manual for the student and a very valuable work of reference for the practitioner of medicine in English-speaking countries. Not one of the least of its many meritorious features is the impress it bears of the individuality of its author, so that where various views or opinions may be current in regard to any subject discussed these are always impartially put forward and critically considered, while the author's own conclusions are concisely stated. The resulting continuity of opinion constitutes the great advantage of such a text-book largely or entirely the work of one man over a series of articles by different authorities, especially for the purposes of the student. Professor Osler's work is in every sense a text-book; orderly, well arranged, and each disease separately considered in conformity with a definite general plan, it is easy to read and convenient for reference. Although it lacks the narrative or illustrative style of the older text-books of medicine, this is the necessary outcome of the present methods of study, in which attention is directed to morbid processes rather than to types of disease; consequently what it loses in picturesqueness it gains in conciseness and comprehensiveness. The work is so well known that any detailed review is unnecessary, but the present edition has been made the subject of considerable alterations to which brief reference may be made.

In the first place, a larger page has been used and a different style of type has been employed, so that although considerable additions have been made to the letterpress the volume does not seem noticeably larger. The arrangement of the work has also been considerably changed. The diseases due to animal parasites, including protozoa, have been grouped together and placed at the beginning of the volume, constituting a section of the highest value and embodying a great deal of the recent important work on the relation of animal parasites to the causation of tropical diseases. Amœbic dysentery thus becomes separated from the bacillary form which remains among the specific infectious diseases. The amœba dysenteriæ is carefully described and the lesions found in association with it are fully considered, while its relation to the production of liver abscess is discussed. Short but clear accounts of trypanosomiasis and of tropical splenomegaly (Dum-dum fever) are added and contain descriptions of the trypanosomes and Leishman-Donovan bodies. The article on Malarial Fever contains a valuable epitome of the recent advances in our knowledge of the parasites within the mosquito, as well as of the cycle of their development in man. The subject of ankylostomiasis has been brought up to date and includes the recent important work of Looss and Stiles, thus furnishing an excellent *résumé* of what may at any time become a subject of great importance in this country.

Section II., dealing with specific infectious diseases, has also undergone some changes. The article on Typhoid Fever has been largely rewritten and, like its predecessor, is one of the most exhaustive and practical accounts of the disease with which we are acquainted. The protective inoculation of vaccines is discussed and also its value as a prophylactic. The accounts of measles and scarlet fever have also undergone some changes. The article on Actinomycosis contains a brief summary of the chief facts relative to the streptothrix infections, but in virtue of the belief now gaining ground that these infections are commoner than is generally supposed to be the case, we are of opinion that a more detailed account would be an advantage; moreover Professor Osler does not indicate that many of the cases in the human subject are due to streptothrix organisms not identical with the bovine form. The account given of diphtheria, and particularly of the bacteriology of the disease, is a careful and critical discussion of a difficult subject. The relation of the Klebs-Löffler bacillus to other organisms with similar morphological characters, especially the bacillus xerosis, is considered. In regard to the use of antitoxin Professor Osler quotes Dr. J. H. McCollom of the Boston City Hospital, who recommends giving it until the characteristic amelioration of the condition is produced, whether 4000 or 70,000 units be required for the purpose. The value of prophylactic injections of antitoxin is also demonstrated by statistics. Rheumatic fever is considered among the specific infectious diseases and the evidence for that view is carefully criticised. Professor Osler is of opinion that the organism isolated by Achalme, Poynton and Paine, and other observers has not been convincingly demonstrated as the cause of the disease.

Section III. is devoted to the intoxications and contains, in addition to alcoholism, morphinism, and saturnism, interesting accounts of food poisoning and of sunstroke.

In Section IV., dealing with constitutional diseases, considerable alterations have been made in the articles on gout and diabetes. In the discussion of the origin of the former very little mention is made of the theory of the primary renal origin of the disease or of the view that some, at any rate, of the uric acid is formed in the kidneys. The account given of the pathology of diabetes and its complications is very good; the production of coma and its real nature as an acid intoxication, or acidosis to adopt Naunyn's term, are well stated.

In most of the other sections, except that on Diseases of the Nervous System, the changes are only such as to adapt them to the advancing tide of pathological and clinical knowledge. In the section on the Nervous System there are, however, considerable additions.

Interesting features of the present edition of Professor Osler's text-book are the brief historical notes appended to the description of certain diseases and these in all cases are

well worth reading. The directions given under the head of treatment are also more detailed in many cases and include recent advances. The sixth edition of this work is well up to date in so far as that is possible in regard to a progressive study such as medicine, and it will fully maintain the reputation of its distinguished author.

Food Preservatives, their Advantages and Proper Use. By R. G. ECCLES, M.D., Phar.D. With an introduction by E. W. DUCKWALL, M.S. London: Kegan Paul, Trench, Trübner, and Co., Limited. 1905. Pp. 202. Price $1.

THIS is a spirited defence of the use of preservatives in food, or at any rate of certain of them. Having been actively engaged in the manufacture of food products for years and having studied the actual requirements of the food-packing industry, Dr. Eccles has no hesitation in saying that the crusade which is being waged against the use of preservatives is a matter to be regretted by all serious-minded men. Disclaiming any special advocacy of the general use of antiseptics in food, he asks those who oppose their application to point out a method of packing certain perishable articles in such a way as to protect the public health without them. In support of his case he then proceeds to describe a number of cases of illness and death traceable to certain toxins elaborated in food and points out that the inference is that had these foods been properly preserved they would have remained wholesome. "Surely no one can seriously contend that the almost weekly recurrence of cases of severe ptomaine poisoning is at all comparable with the imaginary ills that preservatives are supposed by some people to produce." No objection appears to be raised to the use of salt, vinegar, and smoke for preserving purposes, and why, he practically asks, should the more scientific plan of employing smaller quantities of more powerful substances, such as borax, benzoic acid, and salicylic acid, be interdicted and the business of a legitimate industry severely handicapped if not entirely checked? This all appears logical enough if, first of all, we had not the evidence of experience that articles preserved with smoke, vinegar, or salt are not thereby rendered unwholesome but, on the contrary, that an additional quality of flavour is given to them which increases their appetising properties. Take the case of pickles, for example, which undoubtedly give zest to the eating of cold meats, and imagine borax, salicylic acid, or benzoic acid substituted for the vinegar in such a case. It must not be forgotten also that vinegar increases the digestibility of tough foods by softening them but we are not aware that salicylic acid or any other "more scientific" preservative does anything of the kind. Probably the reverse is the case.

As we have said, the use of the curing or smoke process aims not merely at preserving the food but of giving it palatable qualities. Smoked salmon, herring, or haddock, for example, is not only preserved by the process but agreeably flavoured at the same time. The addition of borax or salicylic acid, on the other hand, would not enhance the flavour of these fishes. The same applies to salted meat, as, for example, ham or beef, which when cured and preserved by salt is made at the same time an attractive article of diet by the process. In short, salt, acetic acid, and smoke serve not only as preservatives but as condiments also. Though we have the evidence of experience in favour of the wholesomeness of these methods of preserving foods we have no convincing evidence that the same is true for articles of food rendered antiseptic by "scientific preservatives." On the contrary, there is evidence to show that they are in many cases not without prejudice to health. We call to mind the admirably practical series of experiments made by Dr. Wiley at Washington on this point. The author, indeed, refers to this inquiry and its *personnel* as the poison squad and attempts to discount the disturbances produced on health by regarding them as the effect of fear on the persons who voluntarily submitted themselves for experiment. "The symptoms are exactly those of nervous strain and worry" (p. 67). Dr. Wiley reported that "both boric acid and borax when continually administered in small doses for a long period, or when given in large quantities for a short period, create disturbance of appetite, of digestion, and of health." It was also announced that the supply of food containing the preservative salicylic acid had to be stopped owing to its injurious effects upon the subjects, from which it would appear that Dr. Wiley had at heart the care of the health of those who submitted themselves to experiment and thus was likely to inspire confidence rather than fear.

We are bound to admit that Dr. Eccles is perfectly logical in many of his points of defence. "By all means let the label tell," he writes, for example, but he objects to making such a declaration synonymous with the word "adulterated." So do we, but consumers have a right to know what foreign constituent (if any) there is in the food which they are eating. Rightly or wrongly, however, the outcry against the use of preservatives has created a certain prejudice against them and that prejudice will be none the less manifested when the presence of a preservative is declared on the label.

We are not aware that in this country the course now adopted of declaring the presence of boric acid in cream has affected its sale in the least degree. The protection of the consumer is the first consideration and the manufacturer has himself to blame for in the first instance employing a preservative and not informing the public of that fact. We do not condemn the use of preservatives wholesale; in some cases their addition is unobjectionable and under certain conditions necessary, but we do emphatically protest against their indiscriminate use. If every article of food is thus preserved the daily dose of preservative ingested might be considerable and do distinct mischief. The use of preservatives, of course, appeals to the manufacturer as it is the cheapest and least troublesome way of keeping certain foods, but the pressure even of prejudice may stimulate him to find other methods of preserving foods which are open to no objection at all.

A Manual of Practical Hygiene for Students, Physicians, and Medical Officers. By CHARLES HARRINGTON, M.D., Assistant Professor of Hygiene in the Medical School of Harvard University. Third edition, revised, and enlarged. London: Henry Kimpton. 1905. Pp. 793. Price 21*s.*

IN spite of the great scope of the subject the author of this work has succeeded in presenting the facts and the principles concerned in all those branches of medical science now conveniently included under the title of practical hygiene within the space of a manual and in such a way as will be sure to command the attention of the reader. The work opens with a chapter on foods and this contains excellent sections on the relationship of food to disease and instances are quoted of the poisonous effects which now and then are caused by the ingestion of such foods as mussels, herrings, salmon, pork, and so on. This is followed by a section on milk and milk products in which the composition of milk, cheese, and butter is correctly detailed and the methods are given for the detection of adulterants and the determination of normal constituents as based on the latest advances of analytical science. A section follows dealing with vegetable foods, including cereals, nuts, oils, fruits, edible fungi, and preserves. The section on beverages comes next, the chapter being concluded by a reference to the contamination of foods with metals.

Chapter II. is devoted to the composition and nature of the atmosphere and there is a very excellent essay on

the impurities of air and their effects on health. The section on sewer gases is in complete accordance with the results of modern investigation. In the account given of the estimation of carbon dioxide in the air by means of baryta water the following sentence, p. 260, it seems to us, is inadmissible: "The free carbon dioxide then attacks more of the carbonate and forms barium bicarbonate which, being soluble and of alkaline reaction, causes the pink colour to reappear." Now a solution of barium carbonate in water containing carbonic acid gas is, so far as the phenolphthaleine indicator goes, distinctly acid, and therefore there is no formation of pink colour when phenolphthaleine is present. The chapter on the soil is full of practical points and that section in particular which deals with the relation of soil to disease is an excellent synopsis of the matter. As to the examination of soils, the author confines his account to the processes involved in the physical and bacteriological tests, which are all clearly described, the apparatus employed for the purpose being in some instances illustrated.

In Chapter IV. we come to questions of water and water-supply and this account, of course, includes hygienic considerations such as water in its relation to disease, the filtration of water and the analysis of water, and so on. It is interesting to note the views of American hygienists as to the comparative value of the chemical and bacteriological analysis of drinking water. Dr. Harrington says that chemistry is to-day equal, if not superior, to bacteriology in indicating possible danger from the use of water exposed to contaminating influence. He refers to the emphasis placed some time ago by bacteriologists on the fact that a sample of water inoculated with a culture of the bacillus of typhoid fever was reported by a chemist of high standing as of great purity and eminently suitable for domestic purposes. Such a test, as Dr. Harrington points out, is unworthy of the slightest consideration, since under natural conditions a water showing a high degree of chemical purity is not likely to be infected with a pure culture of a pathogenic organism. "The submission of a pure water so treated is a mere trap, the setting of which is no more praiseworthy than would be the sending of a sterile solution of cyanide of potassium or of sulphate of strychnine to a bacteriologist with a request for an opinion from the standpoint of his specialty as to its desirability as a beverage." Though a bacteriological analysis may fail to point out danger in advance, yet its value must not be forgotten in its application to the control of the purity of water-supplies and the efficient working of the filter beds. Dr. Harrington's concluding observations on this subject are well worth quoting. "Neither chemical nor bacteriological analysis," he writes, "is infallible. Each has its uses and each may be helped by the other. The value of either lies in the skill displayed in interpreting the results and this requires as much knowledge as the making of the examination itself." Equally good are the chapters which follow on ventilation and lighting, while an instructive account is devoted to plumbing, the construction of drains, closets, flushing tanks, baths, sinks, and so on. In proper sequence follows a chapter on disposal of sewage and here will be found a synopsis of modern methods, besides a reference to methods which must very soon be counted as historical. This chapter is succeeded by one on disinfectants and disinfection and we do not gather from its contents that the question of the standardising of disinfectants has as yet been seriously discussed by our American colleagues.

The concluding chapters are devoted to military, naval, marine, and tropical hygiene, the relation of insects to human diseases, the hygiene of occupation, personal hygiene, and, lastly, infection, susceptibility and immunity. The author conveys his meaning very clearly and the work bears evidence of thorough handling of the subject and of his determination to bring his facts into line with modern developments. The references to recent literature are copious and form a valuable feature of the work. It is a pleasure to find a manual so comprehensively and lucidly written and up to date.

Select Methods in Chemical Analysis (Chiefly Inorganic). By Sir WILLIAM CROOKES, Hon. D.Sc. (Oxford and Dublin), F.R.S., P.P.C.S., P.P. Inst. E.E., Editor of the *Chemical News*. Fourth edition, rewritten and enlarged. Illustrated with 68 woodcuts. London: Longmans, Green, and Co. 1905. Pp. 738. Price 21*s.* net.

RAPID advances in analytical science have been made concurrently with the accumulation of fresh facts in chemistry during the past decade and old methods must give place to new ones. This fact renders the issue and reissue of revised editions on the subject a periodical necessity as fresh methods are recorded in current literature. Sir William Crookes's "Select Methods" presents the great advantage to its readers of being practically a review of recent analytical methods which in a great number of cases have been tested by the author in his personal investigations. That fact alone stamps it with authority and is calculated to give confidence to the analyst who is ever in pursuit of trustworthy methods. More than eleven years have elapsed since the previous edition was issued, a review of which appeared in THE LANCET of August 11th, 1894, p. 323, and in the interval analytical science has advanced enormously—an advance which has been contributed to by almost all civilised countries. Nobody is better able than Sir William Crookes to deal with new suggestions in analytical practice nor does any chemist occupy such a favourable position for becoming familiar with these suggestions. It is not always the case that a writer of a practical book can claim to possess actual personal experience of the processes of which he writes or be able to write in the preface that "the new methods which are now included for the first time are those which have been found to yield satisfactory results under the conditions described." The result is a work of reference, chiefly on inorganic analyses, in which the utmost confidence may be placed. Criticism is thus practically disarmed but we should like to make one suggestion to the eminent author and that is that the dates in all cases corresponding with the time when the new methods were announced as such should be given. Sometimes such references are given but in the main it is not so. It is always helpful and important to know how long a given process has been in vogue and the fact that it is still in use is a proof that the method has received the approval of a large number of workers. We may safely conclude, however, that when Sir William Crookes retains amongst his select methods a given process it may be taken for granted that that process has not been superseded by another of a higher scientific type or with any particular advantage to the analyst. We note in particular that the sections on the detection of arsenic in foods are completely in accordance with the enormous amount of work that has been done upon this subject in recent years in connexion with the outbreak of arsenical poisoning which was due to the contamination of the sugar used in beer. A copy of this book is indispensable to every analytical practitioner.

LIBRARY TABLE.

The Ventilation, Heating, and Lighting of Dwellings. By J. W. THOMAS, F.I.C., F.C.S., Scientist in Ventilation and Heating. London, New York, and Bombay: Longmans, Green, and Co. 1906. Pp. 284.—Mr. Thomas is already known as the author of a book entitled "The Ventilation, Heating, and Management of Churches and Public Buildings." In the present volume he states that his wish has been,

above all, to be practical and to provide a volume which may be of real use to the architect, builder, and tenant. "The deductions drawn and the hints given, as well as the objections raised to the methods widely adopted in fixing radiators, as to their form and position, are not theoretical, but are either obtained from the experience of the writer or from experiments which he carried out with the apparatus in question." The ground covered by the term dwelling in this book is very wide, for it includes the castle as well as the cottage; while the text has a general bearing the apparatus described is specially applicable to villa residences and to houses in large towns. The author states that all the subjects have been faithfully dealt with on scientific and practical lines and he freely criticises the weak points in the appliances used in dwellings. The heating of dwellings by coal-gas, by oils, by electricity, by hot water, and by hot air is in turn considered. The vendor of patent cowls, tall-boys, and chimney-pots will not be pleased with Chapter VI. which deals with smoky chimneys. The book is illustrated with 72 woodcuts.

A Manual of Physiology, with Practical Exercises. By G. N. STEWART, M.A., D.Sc., M.D. Edin., Professor of Physiology in the University of Chicago. With two coloured plates and 393 other illustrations. Fifth edition. London, Paris, and Madrid: Baillière, Tindall, and Cox. 1906. Demy 8vo. Pp. xviii.-911. Price 15*s.* net.—The appearance of a fifth edition of a treatise of this kind in five years after the publication of the first edition is sufficient evidence that it possesses qualities which enable it to hold its own in the struggle for existence against many, and some of them very excellent, rivals. Dr. Stewart's manual owes its success in part to its convenient size, good print, and numerous and well-executed engravings, but mainly to the faculty of clear exposition which is possessed by the author. He has resisted the temptation, which is always great, of simply interpolating new matter and has taken the trouble in each edition to re-write the paragraphs which required to be added to, revised, or materially altered. The result, satisfactory to the author and still more to the student, is that the text presents no patchwork but reads smoothly and intelligibly from beginning to end. By this means new and important matter can be added and obsolete facts omitted and no considerable change in the size of the volume is observable. As a matter of fact, the present edition is only larger than the first edition by about 100 pages, though owing to some reduction in the size of the type considerably more information is given. The new material which has been added has required the rewriting of many paragraphs, and it is difficult to point out the precise points that have been introduced, but in examining the section on Digestion we find that the following points have been carefully introduced: the inhibitory action of the glosso pharyngeal nerve upon the respiratory movements during deglutition; the time occupied in traversing the several divisions of the alimentary canal by substances taken as food; the number and action of ferments contained in the gastric juice; the action of the bile upon the chyme; the nature and action of enterokinase, with an account of Pawlow's and Delezenne's experiments; Bensberg's observations on the movements of the alimentary canal in man; Schutz's law showing that the amount of digestion in a given time is not directly proportional to the quantity of ferment present but to the square root of the quantity of ferment present, a law which is stated by Pawlow and Vernon to hold good also for trypsin, steapsin, and ptyalin; and the importance of bacterial digestion. The weak section of the treatise is the chapter on Reproduction, though the authors may reasonably plead that to do it well would involve a considerable enlargement of the book, and that both in America and in England there are several excellent manuals to which the student can refer if he is inclined to work in that department of physiology. The practical exercises at the close of each chapter are a very good feature of the book and if carefully followed out would form an excellent introduction to the more advanced work of the physiological laboratory.

Sound and Rhythm. By W. EDMUNDS, M.A., M.B. Cantab., F.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1906. Pp. 96. Price 2*s.* 6*d.* net. Set of Models of the Ear, 21*s.*—The author has prepared this little book primarily with the object of teaching young students to observe and to think for themselves, using the phenomena of sound as a means to this end. The book is divided into chapters on the nature of sound, sound waves, musical scales, organ pipes, time and movement, the ear and the voice, each chapter being dealt with for the most part in a simple manner. Chapter III. on Musical Scales contains a very clear exposition of the arithmetical proportions existing between the acoustic vibrations constituting the various notes and their associated harmonics. It, in fact, exhibits what may be called the numerical structure of the major scale and one form of the minor scale, and fully explains such details as the production of discords among the overtones of notes which are not themselves discords, the equal temperament of keyboard instruments, and the production of the minor third and sixth by the inversion of the major sixth and third respectively. This part is excellent but the chapter on the Physiology of the Ear is rather overdone in parts, for in a small treatise on sound it is superfluous to speculate as to whether "in the internal ear there are vibrators which act like miniature pendula." On the whole the book should prove a useful elementary text-book on the subject with which it deals, the many good illustrations helping to elucidate the text and the models of the ear which are issued in connexion with the book serving a like purpose.

Moveable Kidney (Ren Mobilis): A Cause of Insanity, Headache, Neurasthenia, Insomnia, Mental Failure, and other Disorders of the Nervous System; a Cause also of Dilatation of the Stomach. By C. W. SUCKLING, M.D. Lond., M.R.C.P. Lond. With plates, facsimiles, and charts. London: H. K. Lewis. Demy 8vo, pp. xvi.-130. Price 10*s.* 6*d.* net.—The author of this remarkable work evidently is impressed deeply with the importance of a moveable kidney. He expresses his disagreement with the opinion of Professor W. Osler that if a moveable kidney be detected accidentally it is well not to let the patient know of its presence. In regard to this statement, which we must say appears to us most reasonable, Dr. Suckling asks, "Should a classic in medicine —viz., Dr. Osler's text-book—allow the possibility of a dislocated organ being discovered accidentally?" The author is astounded that Professor Osler should write so lightly of a condition which the gynæcologist and neurologist find of such vital importance in each of their special branches. If we are to believe this book, a moveable kidney may cause a very large number of important pathological conditions. We are informed gravely that amongst these symptoms are insomnia, headache, mental depression, neuralgia, dyspepsia, and constant ill-health, and that many women have been driven to commit suicide or have been sent to asylums who might have been saved if the condition of their kidneys had been discovered. Dr. Suckling evidently has been influenced greatly in his views on this subject by the writings of some of the American gynæcologists who undoubtedly attach much too much importance to this very common condition. When we read that Dr. Goelet, whom the author chiefly quotes and whose operation he recommends, has performed nephropexy on 197 occasions it is evident that this surgeon regards a case of moveable kidney as a very serious ill. We cannot do the same. In our opinion the condition is quite as common as the author maintains and it may be discovered in a large number of patients, especially those

attending the gynæcological department of any large hospital. But we entirely disagree with the view that in the great majority of cases it causes any marked symptoms, and it certainly never causes half the symptoms with which it is credited in this work. Dr. Suckling quotes a list of 12 symptoms given by Dr. Goelet as due to a moveable kidney and adds a further list of 16 symptoms which he believes are also to be attributed to such a displacement. Amongst some of the most striking of these are mucous colitis, dysmenorrhœa and mania at the periods, seminal emissions and sexual delusions, leucorrhœa, endometritis, ovaritis, and salpingitis. How these latter affections are produced by a moveable kidney the author does not inform us but a diagram is given purporting to show how a dropped kidney can press on the spermatic and ovarian vessels. Anatomically we much doubt the possibility of any such occurrence and cannot accept the truth of this hypothesis. The author's enthusiasm for his subject has evidently allowed him to assign to this comparatively simple condition a much greater etiological importance than it merits. We do not deny that a moveable kidney may in certain circumstances cause very marked symptoms and Dietl's crises no doubt do occur and at times form an important clinical state. We must, however, express our strong dissent from much of what the author says in this book and our entire agreement with the views of Professor Osler and Sir Frederick Treves on this subject, more especially with the statement of the latter, when he says that he believes that the suturing of a moveable kidney will become one of the rare operations of surgery.

JOURNALS AND MAGAZINES.

Caledonian Medical Journal.—The principal editorial article in the January number commences with the familiar query, What is Whisky? The subject is then discussed from the very beginning, for the reader is told that Ireland has the credit of the origin and the name of whisky, the English soldiers of Henry II., when invading that island in 1172-74, having found in use among the natives a strange drink called *uisge béatha*. It seems to have been a spirit obtained by distillation and flavoured with seeds and spices. In Scotland the first mention of spirit is found in 1494, in the Exchequer Rolls, to the effect that eight bolls of malt had been obtained to make aqua vitæ for the use of the King (James IV.); there were, however, no distilleries worked commercially until about a century later. On the main question—namely, whether grain or malt whisky is the preferable one—the ultimate decision is left to the taste of the consumer.

School.—The February number of *School* contains the first of a series of articles on the Engineering of School Buildings by Mr. Sydney F. Walker. He points out that hotels, hospitals, and schools present several almost identical problems, such as lighting, heating, and ventilation, as well as cooking and laundry work on a large scale. Incidentally he mentions that a caterer who has cold storage at his disposal can take advantage of market fluctuations and that means of disinfecting clothes and bedding is a valuable adjunct to an institution of the kind above mentioned. He promises to deal with these questions in forthcoming numbers of *School*.

The Guyoscope.—Our resurrected and lively contemporary has reached its second number and bids fair to be as amusing as the original *Guyoscope*. We like the revised proverb, "It's an ill wind that doesn't yield to turpentine," a version which might have come from that delightful little work "The Cynic's Calendar," in which the other day we found the following, "More waist, less speed."

Looking Back.

FROM

THE LANCET, *SATURDAY*, Feb. 29th, 1828.*

METHODS OF ASCERTAINING THE PURITY OF THE SULPHATE OF QUININE.

IN the present number of the *Annals of Philosophy*, there is an interesting and valuable communication from Mr. Richard Phillips, on the means of ascertaining the purity of the sulphate of quinine. In consequence of the great consumption of, and demand for, this invaluable medicine, it has attained a high price, hence it has been adulterated in various ways, by those who do not hesitate to sacrifice the health and lives of their fellow-creatures, at the shrine of cupidity. .....

With respect to the comparative purity of the French and English sulphate of quinine, speaking generally, we cannot state anything decisive; the samples of each, which have been forwarded to us for the purpose of examination, we find to be perfectly pure. The most common mode of sophisticating this medicine, we believe, is by the admixture of sulphate of magnesia, or some ammoniacal salt, which are substances readily detected: the presence of any extraneous vegetable matter, we apprehend, is with difficulty ascertained. It seems, that there is now a competition between the English and French manufacturer of quinine; the latter having enjoyed, until lately, the almost entire monopoly of the article. With every feeling of patriotism, and good wishes towards the English manufacturer, we cannot avoid expressing our doubt that he will be undersold by the French, owing to the cheap rate at which the latter obtains his materials. The cinchona and rectified spirit are purchased in France, if we are informed correctly, at less than half the price paid in England: three pounds of bark will yield one ounce of sulphate of quinine; and if the price of bark, in France, should amount even to three shillings and sixpence per pound, the salt will cost, in its manufacture, thirteen shillings and sixpence per ounce. To this must be added, the expense of bottles, carriage, and agency for its sale; yet, notwithstanding all these, the French manufacturer can afford the article at a lower rate than it can be made at in this country, as may be clearly shown by estimating the price which the cinchona and spirit of wine bear in England.

The two principal manufacturers of quinine in France, are Marchand and Delone; the former, in conjunction with Caventon, and the latter with Pelletier, both of whom, it will be remembered, the Academy honoured with a reward for the discovery of the medicine.

FRAUDS BY HOSPITAL PATIENTS.

To the Editor of THE LANCET.

SIR,—Knowing you to be an exposer of abuses, in any way connected with the medical profession, is the reason I trouble you with this communication.

The facility with which medicines can be obtained at the Hospitals, induces out-patients with ague, to continue attendance long after their health is established, that they may *retail* those medicines to others; this practice has been continued for some time, perverting the objects of charters, and infringing the rights of general practitioners.

Showing you the evil, and hoping a remedy will be found,

I am, Sir,

Your obliged servant,

C. P.

P.S. The decided effect, mild operation, and price of quinine, are also incentives to this fraud.

Dartford, Feb. 10th, 1828.

DIVINE MODE OF CREATING M.D.'S.

The Most Reverend Father in God, the Archbishop of Canterbury, has been pleased to confer the honourable title of M.D. on CHARLES CLARKE, Accoucheur and Bat. This distinguished personage is now denominated by the ladies, the DIVINE Doctor.

* This is the date printed throughout this particular number THE LANCET but the following number is dated March 8th, 1828.

THE LANCET.

LONDON: SATURDAY, MARCH 3, 1906.

Control in the Metropolis of Tuberculosis in Pigs.

EVEN as London is alone in the magnitude of its population, so is it unique in certain of its administrative methods. It may, indeed, be questioned whether in any other city of the world there can be found in its several districts the same divergences as regards certain administrative details as obtain in the several boroughs of which London as a whole is composed. A capital illustration of such divergences has recently been brought to light by Dr. G. S. BUCHANAN, one of the medical inspectors of the Local Government Board, in a report which he has compiled on the methods of administration in London with regard to the meat of pigs affected with tuberculosis.[1] It is, we gather from this valuable contribution, difficult to ascertain accurately the extent to which the carcasses of tuberculous pigs are introduced into the metropolis, a fact which is due—at least, in large part—to the circumstance that the supply of meat in London is not, as in the case of great European capitals, as, for example, Paris and Berlin, introduced through a few definite and well-controlled channels such as public abattoirs, but that it filters through numerous by-paths the majority of which are under very imperfect, if any, supervision. Consequently figures relative to the prevalence in London of bovine tuberculosis, which is believed to be associated with tuberculosis in pigs, have to be procured from places such as Birkenhead, Glasgow, and, of course, Germany, if we are to appreciate the situation exactly. In Birkenhead 1 per cent. of the pigs were found to be tuberculous, in Glasgow 4·24 per cent., and in Prussia nearly 3 per cent. Doubtless these variations are due in some measure to the care with which inspection is carried out, but that this is not the whole of the story may be gathered from the fact that in certain batches of pigs the whole may be found to be tuberculous, a circumstance which emphasises the belief that the milk of tuberculous cows and the débris from milk separators are in the main the source of tuberculosis in pigs. The Danes have long since taken steps to control this source of infection by enacting that all skim or butter milk shall be pasteurised or boiled. But there is no room for doubt that pigs are susceptible to human tuberculosis as well as to bovine, a fact which indicates that the consumption of the flesh of tuberculous pigs is not without danger for the human species. The tendency of tuberculosis in the pig to become generalised is well known and it was this tendency which led the Royal Commission on Tuberculosis to recommend that when tuberculosis was detected in the carcass of a pig the whole carcass should be confiscated. It would not appear, however, from the useful information contained in Dr. BUCHANAN'S report, that these recommendations are uniformly acted upon either in the provinces or in the metropolis, and even in certain places where in theory they are so acted upon no very serious efforts appear to be made to detect the minor degrees of tuberculosis. For the City of London the recommendations of the Royal Commission form the basis of action in the Central Meat Market at Smithfield, where the staff is under the control of Dr. W. COLLINGRIDGE, the medical officer of health of the City. The same standard is not, however, enforced in the Metropolitan Cattle Market at Islington. As regards inspection in the metropolitan boroughs there seems to be considerable diversity, and Dr. BUCHANAN states that in several of these metropolitan boroughs the inspection of meat practised amounts to little more than an occasional inquiry or seizure of suspected wares; and although private slaughter-houses are inspected from time to time attention is paid mainly to their cleanliness rather than to the quality of the meat. He adds that from 1902-04 inclusive no butchers' meat was "seized" or "surrendered" at any of the slaughter-houses in 20 out of the 28 metropolitan boroughs. What all this means from an administrative standpoint is obvious to anyone having any administrative experience, and it is clear that the diseased meat will find its way by preference to those districts where "seizures" never or rarely occur. It would seem, indeed, from Dr. BUCHANAN'S report that in so far as security can be insured by inspection it will be the safer course to consume the meat of pigs imported into this country from Holland, Denmark, Belgium, and the United States, at which places the recommendations of the English Commission appear to be observed and where satisfactory evidence of inspection is attached to each carcass. This disparity both in theory and practice is clearly most undesirable and we are quite in accord with Dr. BUCHANAN when he advocates the acceptance of the principle laid down by Sir SHIRLEY F. MURPHY that no butcher's meat which has not been inspected should be sold to the London public. Sir SHIRLEY MURPHY has advocated a general system of inspection and marking to be carried out at some half-dozen "meat inspection stations" situated at points possessing advantages as regards both rail and road traffic and this appears to us a sound and practical policy. We are also in agreement with Dr. BUCHANAN as to the desirability of considering whether certain of the meat which is "condemned" might not be rendered safe for consumption by some process of sterilisation and sold, duly labeled, to the poor at a reduced price.

[1] Dr. G. S. Buchanan's Report to the Local Government Board on Administration in London with regard to Meat of Pigs affected by Tuberculosis. Wyman and Sons, Limited, Fetter-lane, E.C. 1906. Price 1s.

Recent Advances in the Surgery of the Stomach.

THE more rapidly a science or an art advances the more frequently is it advisable, or even necessary, to review the changes that have occurred in order that a true estimate of the amount of real progress may be formed. Barely six years have elapsed since we published in THE LANCET the Hunterian lectures delivered by Mr. A. W. MAYO ROBSON on the Surgery of the Stomach and in THE LANCET of last

week and in the issue of to-day we print another series of Hunterian lectures by Mr. H. J. PATERSON dealing with the very same matter. Now anyone unacquainted with the recent advances of the surgery of this organ might be inclined to doubt if much that was new could be said on this subject, but those who know the great progress made will recognise that the lecturer had time to deal with only a portion of the matter belonging to the title of his lecture. But a few years ago the stomach was to the surgeon a *terra incognita*—or may we say a *mare incognitum?* He knew nothing about it from a surgical point of view and it is not surprising that he hesitated long before venturing to operate on the stomach. A gastrostomy was for many years the utmost limit of his ambition and the mortality from that operation was extremely high. Yet the wall of the stomach is very suitable for operative procedure. It is strong and thick and thus differs greatly from the intestine, especially the small bowel, the thin wall of which is ill fitted for bearing sutures. At the present time the operations performed on the stomach are numerous, though the oldest of these was first performed in 1849, and not with success until 1875, so that the history of gastric surgery barely extends beyond 30 years, if we may reckon SYDNEY JONES'S successful gastrostomy in 1875 as the true beginning. In the first ten years the progress was slow, for new applications of surgery to the stomach were adopted with much hesitation, but as surgeons found a certain measure of success attending their endeavours they were incited by that success to attempt to deal surgically with other morbid conditions of the stomach. In 1881 RYDYGIER performed the first operation for the cure of gastric ulcer; he resected a large ulcer from the posterior wall of the stomach and 20 years later the patient was alive and well. By this and other methods surgery has shown that the non-malignant ulcer of the stomach is very amenable to surgical treatment and even when perforation has occurred into the cavity of the peritoneum surgery has been able to rescue many of the victims from impending death. In 1880 MIKULICZ operated on a case of perforation without success, but 12 years later, in 1892, KRIEGE was able to obtain a successful result. Many other operations on the stomach have been introduced and have met with varied success. From the first pylorectomy of PÉAN in 1879, when only a small portion of the stomach was removed, surgery advanced until in 1897 SCHLATTER of Zürich removed the whole of the stomach for carcinoma and the patient recovered. It is needless to mention in turn all the gastric operations which are now practised, for our object especially is to draw attention to the advance made in this branch of surgery between 1900 and the present time. We must confess that only one new operation on the stomach has been introduced in these six years and that is FINNEY'S method of relieving pyloric obstruction by opening the first portion of the duodenum into the cavity of the stomach and for this operation the title of pylorogastroduodenostomy has been devised.

If only one new operation has been adopted during the past six years, wherein has been the progress? Chiefly in the improvement in the methods and in the technique employed, and the best evidence, the conclusive evidence, of this progress is to be found in the steadily diminishing death-rate from all operations on the stomach. We know now much more of the stomach and its ways than we knew even only six years ago and therefore we are in a better position to decide which is the best operation for any gastric condition and which is the best method of doing it. It is needless to say that differences of opinion still exist on many points and in most of the questions there is still room for two opinions; moreover, it must never be forgotten that the surgeon is as important as the method. The most striking phenomenon of recent gastric surgery is the high position taken by gastro-enterostomy. For the relief of the most varied conditions of the stomach it is recommended and though it is not represented to be a true panacea yet the great value of the operation is readily explicable when we recognise that it affords physiological rest to the stomach. It is therefore very necessary that we should have trustworthy evidence as to the results of this operation and that the best method of performing it should be determined. This was the first problem dealt with by Mr. PATERSON and to this end he collected 2548 cases with 1788 recoveries; these figures give a mortality of almost 30 per cent. but the statistics of individual operators give a much truer idea of the real mortality of the operation. According to Mr. MAYO ROBSON'S latest statistics his death-rate after this operation was only 3·7 per cent., but some of these cases were malignant, and Mr. B. G. A. MOYNIHAN had a mortality of only a little more than 1 per cent. in a series of 171 gastro-jejunostomies for chronic gastric ulcer, uncomplicated by either perforation or acute hæmorrhage. It will thus be seen that the mortality of the operation is small, but, small as it is seen to be by these figures, it is still diminishing for Dr. W. J. MAYO has had only one death in his last 81 operations for non-malignant disease and Mr. MOYNIHAN has had no deaths in his last 100 cases. These results are far better than those given in the text-books, and we agree fully with Mr. PATERSON when he says that "gastro-jejunostomy for non-malignant disease is one of the safest operations of major surgery and one which at the present time is attended, in skilled hands, with an immediate mortality of not more than 3 per cent." The most troublesome sequela of gastro-jejunostomy is probably regurgitant vomiting and it was formerly always attributed to reflux of bile into the stomach through the proximal loop, but this can hardly be so, as DASTRE has shown that bile in the stomach does no harm to the digestion or to the general health. Several other explanations have been given but Mr. PATERSON adduces good evidence in favour of the view that obstruction at the efferent opening is the real cause. He shows that an opening which appears patent to the eye may become occluded, when the stomach is distended, by a valve-like spur. We are inclined to accept this explanation of regurgitant vomiting as it is reasonable and simple. Yet whatever the true explanation may be, there can be no doubt that the most suitable treatment for regurgitant vomiting is to perform an entero-anastomosis between the afferent and the efferent loop; the lives of several patients have been saved by the adoption of this expedient, one as late as the twenty-third day. Another very important question discussed by Mr. PATERSON is as to what is the remote result of gastro-jejunostomy. Does this abnormal communication

exert any harmful influence on the nourishment and metabolism of the patient? The lecturer maintained that it does not and he based this opinion both on clinical and on chemical evidence. The clinical evidence may be summed up as follows: of 116 patients on whom the operation was performed for some non-malignant disease more than two years ago 97 are at present alive and well and nine others are in a fairly satisfactory condition. As to the chemical evidence, Mr. PATERSON reported the results of careful analyses of the food and ejecta of three patients after gastro-jejunostomy and these show clearly that the percentages of nitrogen and fat absorbed differ but little from those in healthy persons. It has generally been held that the loss of nitrogen and fat by non-absorption was very great and this opinion was based on JÖSLIN'S investigations in 1897 but these were made on two patients on whom the gastro-jejunostomy had been done for the relief of pyloric obstruction caused by carcinoma. It must be obvious that conclusions founded on cases such as these cannot influence in the smallest degree our decision as to operating on non-malignant cases. It is thus seen that the clinical and the chemico-pathological evidence brought forward by Mr. PATERSON agree in showing that the performance of anastomosis between the stomach and the jejunum does not modify to any practical extent either the digestive or the absorbent power of the alimentary canal. In two cases the patients lived 18 and 19 years respectively in perfect health after the operation.

Of late years nearly all surgeons have expressed a marked preference for posterior gastro-jejunostomy where the bowel is brought through a hole in the mesocolon. A careful examination of a long series of cases in which the posterior operation has been done will show that it is by no means free from dangerous complications; especially is there a liability to the production of an internal hernia by the passage of small intestine through the hole made in the mesocolon. It is certain, too, that the posterior operation is more difficult and takes longer to perform than the anterior operation. Mr. PATERSON discusses the question fully and arrives at the conclusion, in which we concur, that the anterior operation has much in its favour and that the antipathy to it displayed by most surgeons is ill founded. The treatment of non-perforating gastric ulcer received much attention in the lectures and the lecturer came to the conclusion that in chronic gastric ulcer "if after six weeks' complete rest on a milk diet, a further period of six weeks on a milk diet with comparative rest, followed by three months' careful dieting, the patient is not free from definite symptoms, or if, after apparent cure, the patient has a relapse, operation is in the best interests of the patient." As to the operation to be performed Mr. PATERSON had no doubt that gastro-enterostomy offers the best results, both immediate and remote. When a gastric ulcer has perforated no two opinions can exist as to the need for immediate closure of the perforation, but as to the details much variety of opinion is to be found. The lecturer was entirely opposed to excising the ulcer, but he favoured the performance of a gastro-jejunostomy after the closure of the perforation. He objected to flushing the peritoneum for he found when acting as an anæsthetist that there was always much shock when flushing was performed. Sponging is equally out of place, in his opinion, for the one thing needful is the promotion of drainage through the intestinal lymphatics and early intestinal peristalsis. These are favoured by a gastro-jejunostomy which permits the earlier administration and more rapid action of purgatives. Mr. PATERSON also discussed congenital pyloric stenosis and its treatment and he advised careful feeding for a time and then, if an operation should prove necessary, he was inclined to favour gastro-jejunostomy. With regard to the question of the surgical treatment of cancer of the stomach space will not allow us to follow the lecturer. Suffice it to say that this also was discussed with the same care, thoroughness, and attention to detail which characterised the other portions of the lectures. Mr. PATERSON may be congratulated on having made a notable addition to our knowledge of the surgery of the stomach, not by introducing any startling novelty in operation but by examining the reasons for and against the various procedures already employed, by laying stress on details of importance in the operations, and by researches into the remote results of gastric surgery.

The Sale of Potable Spirits and the Sale of Food and Drugs Acts.

WE do not disguise a feeling of satisfaction that at length a reform which we have persistently advocated in the columns of THE LANCET for several years is promised in regard to the sale of potable spirits. Five years ago there was no suggestion even that potable spirits might be brought within the operation of the Sale of Food and Drugs Acts with a view to the detection of foreign or added spirit. In the report of THE LANCET Special Commission on Brandy, which was published in THE LANCET of Nov. 29th, 1902, p. 1503, the hope, however, was expressed that the chemical analysis of spirits would be conducted with greater attention to detail than had hitherto been the case at the hands of the public analyst in this country. "We have no doubt," this report concludes, "that the methods of analyses as applied to brandy would, when applied to various whiskies, show significant differences of composition sufficiently marked to enable a discrimination to be made between genuine or all-malt whisky and blended whiskies or purely grain spirit whisky." As the application in this country of chemical analysis to potable spirit was extended in the manner suggested by our Commissioners the fact was revealed that substitution was very largely practised by the spirit trade. The campaign against this practice commenced therefore with the publication of the report on brandy in THE LANCET in 1902 and it was not long before the assertions of our Commissioners were put to the practical test of proceedings in the police court. Case after case was brought before the police magistrates and on the evidence of analysis convictions were obtained under the provisions of the Sale of Food and Drugs Acts. It is a significant fact that the success of these proceedings led to an immense shipment back to France and elsewhere of brandy which its shippers knew perfectly well did not come

up to the standard. The decision given in the well-known brandy case by Mr. FORDHAM at the North London police court on May 30th, 1904, clinched the matter, the prosecution being successful.

Attention, then, naturally was turned to whisky and the public, we may be certain, showed a greater interest in this case, for, deplore it as we may, whisky is a very popular beverage. The purity of brandy concerned the few, since it is viewed as a spirit of medicinal import. ance, but the purity of whisky concerned the many who are regular drinkers of it. The health authorities of Islington decided to submit whisky to the same test but before doing so they very wisely determined to satisfy themselves as to whether a standard could be set up, thus following the same line of procedure as was adopted by THE LANCET Commission in 1902—that is, in regard to brandy. A large number of genuine whiskies were obtained and analysed and a personal inspection of the distilleries in Scotland and Ireland was made. The inquiry culminated in proceedings being taken at the North London police court on Nov. 6th, 1905, against two vendors for selling "to the prejudice of the purchaser a certain article of food (to wit, an alcoholic liquid) which was not of the nature, substance, and quality of the article (to wit, Scotch whisky in the one case and Irish whisky in the other) demanded by the purchaser, the said article so sold containing a large percentage of patent-still (otherwise silent or neutral) spirit not whisky contrary to the spirit of the Sale of Food and Drugs Acts of 1878 and 1899." The case occupied the attention of the court on 12 occasions and the hearing of the evidence was concluded on Feb. 12th. A *précis* of this evidence was published from time to time in our columns. The witnesses comprised medical men, chemists and distillers, and various trade representatives. The analyst for the prosecution fixed as the result of his examination of a great number of genuine whiskies the minimum coefficient of secondary products at 380 parts per 100,000 parts of absolute alcohol. In the case of the disputed sample of Scotch whisky the coefficient found was 110·5 and in that of the Irish whisky it was 174·5. The inference was made that each sample consisted of patent-still, silent, or neutral spirit and it is interesting to note how the evidence of chemical analysis alone was entirely supported by the subsequent statement of a witness, called by the defence, who had supplied the spirit. He agreed that the sample was practically young patent spirit with a "dash" of pot-still malt spirit. In the opinion of the magistrate spirit produced by the patent still from a mash consisting to a large extent of maize to which a "dash" of whisky made from barley malt in a pot still had been added cannot be considered as either Scotch or Irish whisky. He therefore convicted both defendants and found that each had sold an article of food which was not of the nature, substance, and quality demanded and that the sales in both cases were to the prejudice of the purchaser.

We entirely agree with this opinion and it is exactly this opinion which we have expressed in these columns now for several years past. The fact is that for far too long a time the trade has not been honest with the public in this matter but at last it has to reckon with the potentialities of chemical analysis which has brought it to book in a way which it could not have foreshadowed. The question is not what the public prefers or which spirit is least harmful to health but wholly and solely whether the whisky generally sold is supplied under its proper name. We maintain that it has not been so supplied and the representatives of the trade are bound to admit as much, if only they will speak with candour. There is no law to prevent the sale as such of patent spirit or of blends of patent spirit and malt whisky, and if the public showed a preference for milder spirit than all-malt spirit the trade would not have been prejudiced if the label had been used to disclose exactly the nature of the contents of the bottle. As a matter of fact, the label invariably has been a gross misrepresentation of the truth. The direction of reform is clear and we are gratified to find that the principle of honest labelling for which we have long fought in these columns promises at last to be upheld by the statutes of the country. We are proud to think that we laid the foundations of this successful crusade against the adulteration of potable spirits and we congratulate the Islington health authorities and their officers who conducted the prosecution on having used with such excellent results the means which brought the truth to light and which were placed at their disposal in the columns of THE LANCET a little over three years ago.

Annotations.

"Ne quid nimis."

HONOUR TO THE FOUNDER OF THE COAL-TAR COLOUR INDUSTRY.

FIFTY years ago William Henry Perkin, happily still amongst us and enjoying good health, discovered mauveine, the first dye obtained from the coal-tar derivative aniline. The beautiful violet substance was prepared by acting upon aniline with chromic acid. This discovery was the foundation of an enormous industry, representing at the present time a capital of several millions of money, but unfortunately the application of Perkin's discovery found practical development not in this country but abroad and Germany may be reckoned to be by far the largest coal-tar colour producer in the world. It is very impressive to think what a feast of colour Perkin's simple discovery placed at man's disposal and so rapidly have fresh colours been discovered by similar processes that practically all the natural colours have been displaced. Perkin's discovery also has had its share in contributing very considerably to the advance of medical science. The differentiation and recognition of pathogenic organisms have only been made possible by the use of aniline dyes and in histology the aniline stains are well-nigh indispensable. Medical men will therefore join in welcoming the movement organised by many eminent scientific men to do honour to the founder of the coal-tar colour industry Dr. W. H. Perkin, F.R.S., on the occasion of the jubilee of his great discovery. An appeal is being made in this country and abroad for subscriptions for the purpose of carrying out the following objects: (1) the presentation to Dr. Perkin for his life-time of an oil portrait of himself, executed by an eminent artist, the portrait to become the property of the nation at his death; (2) the execution of a marble bust of Dr. Perkin to be placed in the rooms of the

Chemical Society; and (3) the establishment of a "Perkin Research Fund" for the promotion of chemical research, to be administered through the Chemical Society. It may be added that Dr. Perkin has been a brilliant contributor to the annals of chemical science all his life, his researches having related to the constitution of matter as determined by physical methods and to the structure of many interesting organic compounds.

MEDICAL EXCURSIONS FOR STUDENTS OF MEDICINE.

IN our issue of Feb. 17th, p. 463, we gave the chief points in the programme of a medical excursion during the course of which a number of towns in the north of France will be visited by a party of medical students, French and foreign. The English section will leave this country on April 18th and will return on the 29th. The names of those intending to take part in the excursion should be sent as soon as possible to M. Etienne Enzot, Administrateur-fondateur des Excursions Médicales Internationales, 184, Rue de Rivoli, Paris. The address, it will be noticed, has been changed. On the second evening after arrival in Paris the excursionists will attend a special performance at one of the theatres on the invitation of the managers of the Œuvre Scientifique d'Enseignement Médical par la Visite des Universités Etrangères. All medical students, male or female, in any year of study are eligible to join the party and suitable arrangements will be made for the comfort and convenience of the ladies who are expected to be present.

OFFICIAL STANDARDS OF PURITY FOR JAMS AS ADOPTED IN THE UNITED STATES.

JAM is no longer considered to be merely a sweetmeat; during the South African war, indeed, it formed an everyday article of diet for the troops. It should be made from sound fruit and cane sugar, but there is no recognised standard of purity in this country for the guidance of analysts. The composition of a jam is such that an analyst would have difficulty in suggesting standards of purity and in detecting some forms of adulteration. The extremely low price at which some so-called jams are sold lends colour to the idea that cheap substitutes for fruit and sucrose enter largely into their composition. It is possible for a cheap fruit to be used as the basis of the more expensive jams and it is more than likely that grosser substitutes, e.g., vegetable marrow, are sometimes employed. The correct colour and flavour are easily imitated, thanks to the skill of "fake" chemists. In the case of fruits containing seeds, e.g., the strawberry, it is possible to buy little wooden seeds cunningly fashioned to imitate the natural seeds. The detection of adulteration is rendered especially difficult when a certain amount of genuine fruit is present. Again, unsound fruit is a probable source of danger in the cheaper jams and there is no doubt that glucose is enormously used in some jam factories in place of cane sugar. In view of these possible sources of adulteration it is instructive to call attention to certain clauses in the laws of various States in the United States of America which deal with this important question.[1] In Illinois the manufacture or exposure for sale of any fruit, jelly or jam, or other similar preparation, composed in whole or in part of glucose, dextrin, starch, or other substances, and artificially coloured is forbidden. When any of these substances are employed in making preserves the added ingredients must not be injurious to health and every package must be distinctly labelled "Imitation fruit, jelly, or jam." A clause in the laws of Indiana defines fruit jellies, preserves, canned fruits, fruit conserves, fruit juices, and syrups as preparations of the various fruits preserved only with cane sugar and free from artificial flavours, colouring matter, and other preservatives. All additions except spices or other wholesome natural flavouring materials are considered to be adulterations. In Kentucky fruit preserves, jams, and marmalade must conform to the following standard: they must contain not less than 80 per cent. of total solids, 1 per cent. of acid calculated as malic acid, and 0·6 per cent. of ash; jellies should not contain less than 65 per cent. of total solids, 1 per cent. of acid calculated as malic, and 0·3 per cent. of ash. In Minnesota a pure fruit jelly is defined as a preparation obtained by evaporating the natural juice of the fruit specified, with or without the addition of cane sugar, and containing no other ingredients. When any ingredient other than fruit and sugar is employed in making fruit jelly, jam, or marmalade each package must have securely affixed in a conspicuous place a separate and distinct white label, upon the outside face of which is printed in the English language, with black ink, in type not smaller than 18-point, bold-faced, Gothic capitals, the words: "This preparation is mixed and adulterated," together with the name and address of the manufacturer. Similar laws have been enacted in several other States. In Kentucky the addition of animal gelatin is forbidden and in North Dakota the use of coal-tar dyes is specifically condemned. In the latter State the wise provision is made that all artificial fruit preparations, in addition to bearing the label "Imitation fruit, &c.," must not contain the name of any fruit so as to deceive the purchaser.

[1] Foods and Food Control, by W. D. Bigelow, Chief of the Division of Foods, Bureau of Chemistry, U.S. Department of Agriculture; Bulletin No. 69 (Revised to July 1st, 1905), Parts I. to V., pp. 1-457 1905).

OCCLUSION OF THE SUPERIOR VENA CAVA.

OCCLUSION of the superior vena cava is very rarely observed. At the meeting of the Société Médicale des Hôpitaux of Paris on Feb. 9th the following case was reported by M. Comby, M. A. Vigouroux, and M. G. Collet. A man, aged 36 years, was admitted into hospital on Dec. 5th, 1891, for œdema of the upper half of the body and symptoms of asphyxia. He contracted syphilis six years previously and apparently was insufficiently treated. For 18 months he had suffered from attacks of "thoracic constriction" with tachycardia and vertigo, which occurred twice or thrice daily. Under milk diet, purgatives, and digitalis the attacks diminished but then the patient noticed bluish marblings on his chest due to dilated veins. Next his face became congested, his eyes prominent, his neck swollen, and his respiration difficult. On Nov. 30th, 1901, an attack of suffocation occurred with cyanosis and proptosis. For this a practitioner prescribed leeches, but they gave no relief, and the patient determined to enter hospital. On admission the face was cyanosed and presented œdematous swelling which extended to the neck, trunk, and upper limbs. The swelling of the supra-diaphragmatic part of the body contrasted with the thinness of the remaining part. There was thrombosis of the jugular and axillary veins. Occlusion of the superior vena cava was diagnosed. As there were dulness over the upper part of the sternum and a systolic murmur at the base of the heart compression of the vena cava by an aneurysm of the aorta was suggested. However, iodide of potassium and mercury were prescribed. An unfavourable prognosis was given but two years later the patient was in a fairly satisfactory state and he survived the occlusion of his vena cava more than 15 years, finally succumbing to general paralysis. In December, 1893, there was no œdema, thanks to an excellent collateral circulation which was shown by large sinuous cords on the front of the chest and abdomen. The blood, not being able to reach the heart by the superior vena cava, flowed down into the epigastric veins and entered the inferior vena cava. In June, 1901, the patient was admitted into an asylum suffering from general paralysis. Then the condition of the veins just

described was present and the dulness over the upper part of the sternum persisted without change. There was no murmur but simply irregularity of the heart's action. Death occurred in June, 1905. At the necropsy a dissection of the subcutaneous venous cords was made. In the upper part of the thoracico-abdominal wall were two principal trunks on either side, one coming from the neck and the other from the axilla to unite at the level of the umbilicus. The resulting vessel on the right side was the epigastric vein, greatly dilated; on the left side the vessel formed passed above the umbilicus to empty into the right epigastric vein, for the left epigastric was obliterated. Behind the upper half of the sternum and in front of the pericardium and the great vessels was a thick mass of fibro-adipose tissue full of veins of various calibres, which seemed to be formed by the thymic, mediastinal, and pericardial veins. Thus the dulness found during life was explained. The superior vena cava and the innominate, jugular, brachial, and axillary veins were transformed into fibrous cords and much diminished in size. The vena cava was no bigger than the brachial artery at the bend of the elbow. The pia mater of the brain was much thickened and showed hæmorrhagic effusions over the middle of the hemispheres. Microscopic examination showed that the vena cava was obstructed by an organised clot which was partly calcified; its middle and internal coats were fibrous and contained calcareous deposits. The nervous system showed the ordinary changes of meningo-encephalitis. The posterior columns of the spinal cord were sclerosed and the pia mater was thickened. Evidently the venous and nervous lesions were due to syphilis. This case shows that occlusion of the superior vena cava is not always such a serious condition as some writers have maintained. The presence of the mass of fibrous tissue in the anterior mediastinum gave rise to the sternal dulness and consequently to the diagnosis of aortic aneurysm compressing the vena cava. It is interesting that in another case of occlusion of the superior vena cava the same condition was present and give rise to the same error.

THE BIRDS OF THE BRITISH ISLANDS.

BIRDS are of interest to the medical profession not only from the point of view of their natural history but also in that they are the hosts and carriers of certain diseases. We may instance psittacosis as one disease with which birds may afflict human beings but various workers in the field of malarial pathology have been guided on their way in great measure by researches on the halteridia of sparrows. However, a book on British birds is now in process of publication which, although written by a medical man, deals with the subject entirely from the natural history point of view. The author is Mr. Charles Stonham, who in addition to being senior surgeon to the Westminster Hospital is also a well-known ornithologist. The book will be illustrated by Mr. L. M. Medland in black and white, and from three specimen plates before us we should say that the pictures will be extremely well done. Black and white for illustrations has its limits, and we much doubt whether Mr. Medland, clever as he appears to be at drawing the general shape of a bird, will be able to differentiate all the varieties without the aid of colour, but one great assistance to identification will be provided. Where a bird cannot be drawn of life size the amount of reduction is to be indicated. The specimen page of matter sent to us contains an account of the nightingale. We have our doubts about the derivation of luscinia from "cluco" I am famous, and "cano" I sing, even though Lewis and Short give it in their Dictionary; and there is surely a misprint where Mr. Stonham, describing the distribution of the nightingale, is made to say, "On the east its range is bounded by the valley of the Exe and the borders of Wales." Here "east" should obviously be "west." The description of the bird and its habits, together with the account of the nest, show careful observation, although to our eyes the colour of the nightingale is rather olive brown than reddish brown. It is intended to issue the book in 20 parts, which, if subscribed for in advance, will cost £6 15*s.*, and if the rest of the work keeps up to the level of the specimen pages and illustrations which we have seen it will be a good investment

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

AT the annual general meeting of this society held on March 1st the following were the nominations for election of officers and council:—As President: Mr. J. Warrington Haward. As vice-presidents: Dr. Thomas Buzzard, Dr. Joseph Frank Payne, Mr. Herbert William Page, and Mr. W. Harrison Cripps. As honorary treasurers: Sir William Selby Church and Mr. Alfred Pearce Gould. As honorary secretaries: Dr. Howard Henry Tooth and Mr. Stephen Paget. As honorary librarians: Dr. Norman Moore and Mr. Rickman John Godlee. As members of council: Dr. Theodore Dyke Acland, Dr. Edwin Clifford Beale, Dr. Sidney H. C. Martin, Dr. George Ogilvie, Dr. William Pasteur, Mr. John Bland-Sutton, Mr. Andrew Clark, Mr. Clinton Thomas Dent, Mr. Walter H. H. Jessop, and Dr. Henry Roxburgh Fuller.

THE ETIOLOGY OF PLAGUE.

AT a meeting of the Bombay Medical and Physical Society held on Sept. 27th, 1905, Dr. John A. Turner, the executive health officer of the municipality, read a paper on the Influence of Insanitary Surroundings on the Spread and Persistence of Plague in Bombay. He said that in August, 1896, plague first appeared in Bombay after an interval of 200 years and spread over India, passing from west to east. The disease had been already reported in both Arabia and China in 1893, 1894, 1895, and 1896. As it did not come across the continent of India to Bombay but spread inland from Bombay, it is reasonable to assume that it was introduced by shipping and that it was brought from the Persian Gulf or Arabia and was carried either by pilgrims or by merchandise, such as grain, or by rats or other vermin. No history of plague was known previously at any ports of India or Burma. Once introduced in Bombay with its population of over 800,000, all conditions were ready for its rapid diffusion, for the poor in that city live in houses and under conditions which render any attempt at sanitation most difficult. Dr. Turner is strongly of opinion that the principal reason for the persistence of the disease in the city lies in the insanitary surroundings of the people, chiefly personal and domestic; in that category he includes their habits, customs, and prejudices, ignorance, and poverty, many of which are difficult, if not impossible, to alter or to remove. He also considers that many points bearing on the causation of the disease and the life-history of the plague bacillus have not been sufficiently studied and that no constant and persistent efforts have been made to connect the bacteriological, clinical, and sanitary evidence on the conditions associated with plague. This work, he says, can only be done by skilled bacteriologists who must not be hampered by official supervision or subjected to petty interference. In 1898 a commission was appointed to inquire into the circumstances of the disease; after spending four months in India the commission returned to England and in 1901 issued a report of its investigations. The commissioners did not come to a unanimous decision as to the influence of insanitary surroundings, for Dr. M. Armand Ruffer and Dr. A. E. Wright hold that the history of recent epidemics affords no proof that sanitary defects aggravate plague, whereas Sir Thomas R. Fraser believes that insanitary conditions inside houses are

the chief causes of its spread and virulence. Dr. Turner believes that plague, unlike enteric fever or cholera, is not conveyed by food or drink but that contact with the body, either through the mucous membrane of the mouth and air passages, vagina, or urethra, or by the skin is necessary for invasion. He therefore holds that the personal surroundings of the individuals are the factors which contribute to the spread of plague.

A LIQUID PREPARATION OF IODOFORM.

M. Bianchi has published[1] a formula for the preparation of iodoform in a liquid state which offers certain advantages over an emulsion of iodoform from a therapeutical point of view. It is a syrupy, yellowish liquid having an odour of iodoform and is miscible with water, alcohol, ether, glycerine, chloroform, essential oils, benzol, eucalyptol, and creosote. It dissolves guaiacol and several other drugs and is easily absorbed through the skin, iodine having been found in the urine six hours after the application of the liquid. It is easily prepared by dissolving 35 parts of caustic potash in 25 parts of water, adding first 50 parts of oleic acid and 30 parts of 95 per cent. alcohol, and then 30 parts of iodine in small portions. On warming the mixture iodine is absorbed and a brownish liquid is obtained. If necessary the brown tint may be destroyed by the addition of a few drops of caustic potash. After a few days the liquid is decanted and kept in a dark place.

REPORT FOR THE YEAR 1904 OF THE INSPECTOR-GENERAL OF THE INSANE, NEW SOUTH WALES.

THIS report was issued in September, 1905. The insane under official cognisance in hospitals and licensed houses in New South Wales numbered 5097 on Dec. 31st, 1904. The largest numbers were accommodated in the hospitals at Parramatta (1101), Callan Park (1048), and Gladesville (973). The total number of hospitals mentioned is seven, one of which is called a criminal hospital. Licensed houses number three. In addition to the above "South Australian hospitals" are referred to but these only contained 22 patients. The increase in numbers during the year amounted to 147 and was greater than the average increase of the past 20 years (128). The Inspector-General considers that provision should be made for a future annual increase of 150. The proportion of the insane to the general population was 1 to 288, which is practically the same as the present proportion for England and Wales. The admissions during the year numbered 1020, which gives a proportion to population of 1 in 1432, and this exceeds the average of the past 20 years (1 in 1753). The proportion has exceeded this average regularly since 1899. In respect to the form of mental disorder in the admissions, it is interesting to note that general paralysis of the insane occurred in only 49 and primary dementia in only 21. It is not unlikely that several of the cases which are here classed under mania and melancholia and which form the bulk of the admissions, would be by many observers regarded as further instances of dementia præcox. The recovery-rate reached the satisfactory figure of 45·38 per cent. of the admissions. The percentage of deaths on the average number resident was the low one of 7·69. Pulmonary tuberculosis caused only 10 per cent. of the deaths. As regards causation of insanity in the admissions, alcoholic excess was the chief cause, occurring 149 times in the 1020 admissions. Hereditary influence was ascertained in only 81 instances, an exceedingly low proportion having regard to the fact that in this country careful inquiry often elicits heredity of insanity and allied nervous diseases in 50 per cent. of the cases. Other prominent causes were bodily diseases and anxiety and worry. The accommodation in the hospitals is reported to be far below the requirements and but little is being done to remedy the deficiency. The weekly cost per head was 9*s.* 5½*d.*, which compares favourably with the cost at home. In addition to the hospitals and licensed houses the report deals with the statistics of two reception houses for the insane and in respect to the larger of these, at Darlinghurst, it states that patients are for the most part only admitted for temporary care and treatment on their way to the hospitals. But it would appear from the statistics that a considerable number are discharged recovered from this reception house. Whilst it is not the business of this report to describe the functions of these houses it would be instructive to know the precise purpose which they are intended to serve. The "observation wards" at certain gaols are next referred to. These appear to be wards set apart for the temporary reception of prisoners exhibiting unsoundness of mind who are transferred to the hospitals if necessary. This is a commendable plan and precise information as to the scope of the work carried on would be interesting.

[1] Bollettino Chimico Farmaceutico, 1905, No. 44, translated into Répertoire de Pharmacie.

A DEATH UNDER CHLORIDE OF ETHYL IN A DENTIST'S CHAIR.

CHLORIDE of ethyl, although employed successfully as long ago as in 1848, has been only within the last few years advocated as a general anæsthetic. The ease and rapidity with which anæsthesia can be obtained by its use and the portability of chloride of ethyl have commended it to many. At the present time there is no doubt that this agent is being given daily and by a large number of persons. It is equally certain that in the hands of many administrators chloride of ethyl is capable of proving itself a dangerous drug. That this danger has not been fully realised is shown by the fact that others than medical men have undertaken the responsible duty incurred in giving any anæsthetic, induced we have no doubt by the unfounded belief that in using chloride of ethyl they were employing an agent devoid of danger and belonging to another category than that in which chloroform and ether are placed. The death which we regret to have to record and which is the ninth published fatality, although there is reason to believe this list is unhappily incomplete, should give pause to those who have unduly extolled the safety of chloride of ethyl. Dr. W. J. McCardie, who was one of the first to adopt chloride of ethyl as a general anæsthetic in this country and who has enjoyed a large experience of cases devoid of all serious complications, gave in March of last year an admirable account of this drug in a paper read before the Society of Anæsthetists. While he recognised its unquestionable merits, when properly used, he warned against over-confidence and pointed out that its death-rate was probably 1 in 10,000 and this fact placed chloride of ethyl far below nitrous oxide and also below ether in the matter of safety. The truth of Dr. McCardie's remarks is illustrated by the unhappy death of the Rev. W. H. Eley, the late rector of Deene Wansford, who died in a dentist's chair on Feb. 20th. It appears that this gentleman, aged 67 years, went to have four teeth extracted and chloride of ethyl was administered to him by a medical man, the brother of the dentist. It is said that an average quantity of chloride of ethyl was given—five cubic centimetres, we believe—but the report before us fails to mention what method was employed—whether or not exclusion of air was practised. The anæsthetist considered nitrous oxide and oxygen inappropriate as not giving the operator time for his work, but we cannot help thinking that for a patient who was nearly 70 years of age the selection of the anæsthetic was an unfortunate one. What posture the Rev. Mr. Eley was in we are not told;

presumably the usual one which is adopted in dental practice and one which is not, perhaps, ideal for giving chloride of ethyl to the aged. The fourth tooth had been drawn when the patient became very pale and died almost immediately. What measures were adopted we are not told, but no doubt all was done which could be; nor does it seem probable that any would have availed. Deaths have occurred from heart failure following the use of chloride of ethyl and a considerable number of cases of syncope which did not terminate fatally have been recorded both in this country and abroad. As we have said, nine deaths under chloride of ethyl have taken place and have been carefully recorded. The first was in the practice of M. Lotheisen, a Swiss dentist. The patient was a powerfully built man of alcoholic habits. Respiratory spasm occurred and death was due to a fatty heart. The second death was that of a child, aged one year, with stenosis of the air passage due to diphtheria. The third patient suffered from strangulated hernia and died as a result of violent vomiting of a large amount of fluid. In the fourth case of death the air passages were pressed upon by a growth. In this case fatty degeneration of the heart existed. Abdominal distension interfering with respiration appears to have led directly or indirectly to the fatal result in the fifth case, while in the sixth œdema of the faucial pillars and rigidity of the jaws, which seem to have caused delay in opening the mouth to facilitate respiration, determined the death. The next case was one in which the dentist gave chloride of ethyl to a strong, healthy man single-handed. The death seems to have been due to asphyxia, unrelieved by the performance of tracheotomy. Syncope in a young woman, aged 18 years, after inhaling five cubic centimetres of ethyl chloride caused the eighth death. It is hardly within our limits to tabulate the "serious cases" which have occurred, very many of which were syncopal in character. Professor H. C. Wood, who investigated the action of this agent some years ago, gave it as his opinion that chloride of ethyl exerted a very strongly depressant action upon the heart and the experience of recent years seems to confirm this view. As an anæsthetic for children and for brief operations chloride of ethyl is justly extolled, but in dental surgery, unless cogent reasons exist for its selection instead of nitrous oxide gas, there seems little to recommend it as a routine anæsthetic. Certainly, after the death now recorded, there is every reason to avoid its use for the aged as well as for those whose respiration is in any way embarrassed. We feel constrained to point out that, although for certain cases chloride of ethyl is a valuable agent in the hands of experienced medical practitioners, it is a serious menace to the public when given by persons untrained in medicine and surgery. Such persons are not familiar with even the commonest dangers of anæsthetics and are quite unable to deal with those graver perils which can only be warded off by the prompt performance of such operations as laryngotomy or tracheotomy.

LOW-TENSION HIGH-FREQUENCY CURRENTS AND ULTRA-VIOLET RAYS.

ONE of the great difficulties in the way of the most successful employment of ultra-violet rays has been that of obtaining the rays in sufficiently large quantity. Finsen first employed sunlight but as the amount of ultra-violet rays present is small and the supply capricious he abandoned it for the electric arc, which, by using suitable carbons, gives a much greater supply of chemical rays and is available when and as long as required. Even here, considering the great expenditure of energy—from three to four kilowatts in the case of a large Finsen arc lamp—the amount of ultra-violet rays present is small. Hence the necessity for using concentration and compression lenses of rock crystal in order that the rays may suffer as little loss as possible between the source and the part under treatment and also for the long exposures which are essential to success. Consequently any method of production which would give a profuse supply of ultra-violet rays with a small expenditure of energy is to be welcomed, since it would at once remove many of the disabilities from which this form of treatment suffers. Dr. J. Cunningham Bowie, in an article which we publish in this issue, claims to be able to effect this desirable end by the employment of *low*-tension alternating currents of very high frequency. The latter is stated to be 360,000,000 per second, while the voltage is 80. Applying such currents to the body the writer claims that he can take from six to seven ampères without any painful or disagreeable sensation. Dr. Bowie does not state how he arrives at these measurements, and considering the great difficulties attendant on the accurate measurement of high-frequency currents these figures must be taken with a certain amount of reservation. The important point, however, is the claim that by means of suitable vacuum tubes the greater part, if not the whole, of this current can be transformed into radiant energy. Time will show how far this is true. Even if it proved to be of but equal power in the output of ultra-violet rays to the Finsen lamp the gain will be great. The apparatus is not unduly complicated and should be less expensive in every way.

NIGERIAN ARROW POISONS.

ARROW poison has already found its way into European laboratories in the shape of urari or curare, anciently known as woorari, and distilled by the Macusi Indians of British Guiana from some four varieties of plants. Much, too, is known of the poison obtained by the Javanese from the upas tree. A third set of arrow poisons has now been studied which differs but little from the South American ones save in the greater deadliness of the effects. These newly examined arrow poisons are used in Northern Nigeria and are described by Mr. Louis W. La Chard, who has studied them on the spot, in a recent number of the *Journal of the African Society*. The Hausas, according to Mr. La Chard, employ two distinct poisons for their arrows—one vegetable, the other animal. He examined seven different specimens of the vegetable poison from different parts of Nigeria as well as the leaves and roots from which the poisons were obtained. As a result of this examination he found that the vegetable poisons generally consisted of "an odourless, light brown, thick, syrupy fluid, with a distinct layer of clear colourless fluid on top." This fluid hardened into a black substance when exposed to the air for some hours. The black substance was soluble in chloroform, ether, and alcohol, but only partially so in water and the dilute acids. Solutions of this vegetable poison brought on symptoms of poisoning after the lapse of a few minutes in the case of small animals. After numerous experiments Mr. La Chard came to the conclusion that the rapidly acting principle of Nigerian arrow poison is contained in the clear fluid above mentioned, which probably contains a highly toxic soluble alkaloid. The ingredients of the vegetable poisons are some 18 in number, and were collected in Mr. La Chard's presence by a Hausa hunter. The brown seeds of the strophanthus plant figure in most of the specimens of vegetable poison examined by him. As to the animal poisons, three specimens of which were examined, they are made up of various kinds of purulent and decaying matter, the more filthy the better. Their effect is to produce ptomaine poisoning. The natives coat their arrows with the animal poison after the vegetable mixture has hardened upon

the arrow heads. They believe that both poisons are necessary to kill a man but Mr. La Chard is of opinion that either would cause death. According to Beigel, an older writer, African arrow poison is far deadlier than urari, from the paralysis produced by which it is possible to recover especially if artificial respiration be induced in the person affected.

THE TREATMENT OF PULMONARY TUBERCULOSIS: A HISTORICAL NOTE.

THE introduction of the "open air" treatment of pulmonary tuberculosis is popularly ascribed to German physicians. This therapeutic measure, however, is by no means a recent discovery but was advocated and carried into practice as long ago as 1833 by Mr. George Bodington of Sutton Coldfield. In 1840 he wrote "An Essay on the Treatment and Cure of Pulmonary Consumption." This essay has now been reprinted and a preface added by Dr. Arthur E. Bodington.[1] In the preface reference is made to our review of the essay published in THE LANCET of July, 1840. We then remarked: "The modest and rational preface with which the author introduces to us his pamphlet on pulmonary consumption has so far influenced us that we shall merely give an outline of his principles without expending any portion of our critical wrath on his very crude ideas and unsupported assertions." Times change and we can now only rejoice that Mr. G. Bodington's shrewd observations and foresight have been substantiated. We welcome this reprint and congratulate Dr. A. E. Bodington on having rescued from oblivion an essay for which full recognition should be given to one who was wise before his time. This little volume (it only consists of about 70 pages) affords most interesting reading and constitutes a remarkable prophecy of the present sanatorium treatment of pulmonary tuberculosis. The details are, of course, not so elaborate as those now adopted but the main principles are the same—plenty of good food and life in the open air, or, to adopt Mr. G. Bodington's own words, he founded his "treatment and cure" on "principles natural, rational, and successful."

A PROVINCIAL sessional meeting of the Royal Sanitary Institute will be held at the town hall, Leicester, on Saturday, March 24th, at 11 A.M., when a discussion will take place on Cremation. The discussion will be opened by Dr. C. Killick Millard, medical officer of health of Leicester, who will give particulars of the Leicester corporation crematorium. Among others who will take part in the debate are Dr. P. Boobbyer, medical officer of health of Nottingham, and Mr. J. C. Swinburne-Hanham, managing director of the London Crematorium Company. The chair will be taken by Colonel J. Lane Notter, R.A.M.C. (chairman of Council of the Institute), and general discussion is invited.

Dr. A. E. Wright, formerly professor of pathology in the Army Medical School at Netley, Dr. Chalmers Mitchell, secretary of the Royal Zoological Society of London, and Professor A. B. Macallum, professor of physiology in the University of Toronto, have been selected by the council of the Royal Society to be recommended for election into the society. We congratulate these well-known men of science and original workers upon the recognition of their researches.

UPON previous occasions—see THE LANCET of April 8th (p. 945) and Dec. 30th (p. 1946), 1905—we have referred to the organisation founded by Dr. J. A. Rivière to unite medical men of all countries into a league the object of which shall be the abolition of war. We are now informed that among British medical men who have already joined are Sir James Crichton-Browne, Mr. George Brown, Sir Francis Mac Cabe, Sir William Thomson, and Dr. Samuel West. It is proposed to hold an international congress in Paris for discussion of the subject some time during the year 1907. Applications for membership should be sent to Dr. J. A. Rivière, 25, Rue des Mathurins, Opéra, Paris.

THE medical officer of health of the Cape Colony states that for the week ending Feb. 3rd the condition of the Colony as regards plague was as follows. No case of plague in man or other animal was discovered at any place in the Colony during the week. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Feb. 23rd states that for the week ending Feb. 22nd no case of plague had occurred.

THE Council of the Royal Institute of Public Health has appointed Professor Elie Metchnikoff of the Pasteur Institute, Paris, Harben lecturer for the year 1906, and Professor Metchnikoff will deliver his lectures on May 25th, 28th, and 30th. The annual congress of the institute will be held at Cork from June 27th to July 3rd, under the presidency of Professor Bertram C. A. Windle, F.R.S., President of Queen's College, Cork.

THE Gillson scholarship in pathology of the Society of Apothecaries of London has been awarded to Mr. Ernest William Ainley Walker, M.A., M.D., B.Ch. Oxon.

X RAY WORK AT THE MEDICAL SCHOOL OF THE UNIVERSITY OF CAMBRIDGE: THE COMMITTEE FOR THE STUDY OF SPECIAL DISEASES.

AT the invitation of the Regius professor of physic and the authorities of the Cambridge Medical School a large and representative audience assembled to hear a lecture by Dr. Hugh Walsham on the use of the x rays in diagnosis, illustrated by numerous lantern slides prepared with a view to their utility in clinical work. The latter half of the lecture was devoted to a demonstration and description of the most recent forms of x ray apparatus, particular stress being laid on the importance of the exact measurement of the quantity and quality of the rays emitted from a given tube, and Dr. Walsham drew attention to the efficient and powerful x ray installation which he was using to demonstrate the various points. This apparatus had been presented to the Cambridge Committee for the Study of Special Diseases by Dr. R. C. Brown of Preston, and had been supplied by Messrs. Watson and Sons of London. Its principal feature, the "intensified induction coil," was a much more powerful form than any hitherto devised and a fine picture of the thorax of a living subject was obtained on a large fluorescent screen, the working of the heart and diaphragm being clearly seen by the whole audience.

Professor T. CLIFFORD ALLBUTT, in proposing a vote of thanks, spoke of Dr. Walsham's interest in his old school and thanked him, first, for coming to give this demonstration, and, secondly, for his gift to the school of a very fine collection of x ray slides. He did not as yet pretend to any skill in this matter himself but he hoped that the committee would soon be enabled to avail itself fully of this new aid to clinical investigation and they were deeply indebted to Dr. Brown for the extremely valuable and costly apparatus he had presented. It was quite unnecessary for him to add anything to the interest of what Dr. Walsham had said but he would like to ask: (1) how far personal equation entered into observations of this kind; (2) whether they were enabled in cases of empyema to detect, by means of the x rays, the concomitant presence of pus in the pericardium; and (3) whether by means of skiagrams any more trustworthy

[1] Lichfield, Lomax's Successors; London, Simpkin, Marshall, Hamilton, Kent, and Co., 1906.

information as to the presence of small cavities in the lung could be obtained.

Professor G. SIMS WOODHEAD, in seconding the vote of thanks, expressed the gratitude of the staff of the Medical School to Dr. Walsham for assisting the work of the Committee for the Study of Special Diseases which had been organised by Mr. Strangeways, the Huddersfield lecturer in special pathology. This committee having undertaken the study of rheumatoid arthritis soon found that x ray photography was essential for its work and its gratitude for the installation was correspondingly great. The Regius professor had referred to Dr. Brown's gift as being especially liberal as not coming from a man personally connected with the University. He (Professor Woodhead) thought that in this the Regius professor was perfectly right: the importance of the work undertaken combined with the enthusiasm of Mr. Strangeways on behalf of the committee had earned the goodwill and confidence of the donor, Dr. Brown. He thought that they must also thank the Regius professor himself who had so kindly lent his own room to the committee in order that this kind of work could be carried on. Dr. Brown had put the committee in a position to start x ray work at once, and he pointed out that Dr. Allan, one of the earliest workers on the x rays in this country, had taken charge of this part of the committee's research.

Dr. WALSHAM, in a modest reply, referring directly to Professor Allbutt's questions, said that with respect to pus in the pericardium it was certainly one of the most difficult points to clear up with the x rays. As to the presence of cavities he referred to the skiagram in which a small cavity of about the size of a pea could be clearly seen.

THE GENERAL MEDICAL COUNCIL: COMMUNICATIONS FROM DIRECT REPRESENTATIVES.

IN connexion with the election of a Direct Representative for Scotland on the General Medical Council, which will take place in November, 1906, Dr. William Bruce has issued the following address to the constituency:—

Dingwall, February 28th, 1906.

GENTLEMEN,—I have been your representative for 20 years. In that time much has occurred. The whole system of medical education has been revised and extended.

When I first became a member of the Council in 1886 a man might enter the profession after three winters' and two summers' study—that is, he completed his course, if he cared, in two years and six months of time. Now the minimum is five years; and so greatly has the curriculum of medical education been extended that the average time now spent by students of medicine is nearer seven than six years. During my membership biology and physics have been added to the science group in the curriculum which formerly comprised chemistry only, but which now embraces physiology and pathology also as special departments of practical medical training.

In the final group of subjects ophthalmology, laryngology, and psychology are now included. From the medical student of to-day attendance on 15 subjects is required instead of eight subjects as when I first became your representative. In all this great work of development of the medical curriculum I, as your representative, have taken a responsible part.

In addition to the usual cycle of final inspections there has recently been an inspection of the first professional examination of all the degree and diploma granting authorities and a visitation of the preliminary science examination of some of them. As a result of these inspections and visitations the Council has become aware that a further rearrangement of the curriculum, in so far as the time devoted to study and the methods of examination are concerned, is imperative. To this work the Medical Council must in the immediate future address itself. Therefore it is that, at the end of a full 20 years' service, I am of opinion I can be of still further use to my professional brethren in Scotland should they again do me the honour to re-elect me to the Council as their representative. I accordingly again place myself in their hands.

In the future, as in the past, I will spare no effort to advance the efficiency of the healing art in dealing with disease and to secure for the profession its just place in the country.

Further, I desire to state that, in my opinion, direct representation of the profession on the Council is at present altogether inadequate. The Medical Act of 1886 grants the Council the power of recommending to the Privy Council an increase in the number of such representatives.

Although the profession has doubled its members since 1886, and the status, as regards scientific knowledge in the profession as a whole, has been greatly elevated, as yet the Medical Council has steadfastly refused to recommend any increase in direct representation. Time and again it has been urged to do its duty in this respect, and more particularly so, as since, by the creation of new Universities in England, the disproportion between the representation of the profession and this class of representatives has been becoming greater and greater. I am prepared to make a final effort to induce the Council to perform its duty in this important particular, and should the Council persist in refusing to act I am further prepared, along with my colleagues in direct representation, to bring the matter under the notice of the Privy Council and to urge the Privy Council to exercise the powers which the 19th section of the Medical Act of 1886 confers upon it. Should it be necessary for us to make such application to the Privy Council we shall expect to receive the support of every registered Scottish practitioner.

Finally, should you do me the honour to send me again to the Medical Council, I trust that my long experience on the Council and its important committees will enable me so to discharge my duties as to meet with the approbation of all the members of the profession in Scotland.

Your obedient servant,

WILLIAM BRUCE, M.D.

Mr. George Jackson, one of the Direct Representatives on the Council for England, has sent us the following report for publication:—

The recent meeting of the General Medical Council has been of much greater interest than any that I have previously attended since I have had the honour of being a member of that body. I should like therefore to point out to the readers of THE LANCET the reasons I have for saying so. Subjects have been discussed by the Council which formerly would have been considered quite outside the purview of that body. I refer more especially, firstly, to the action taken by it with reference to the proposed legislation with regard to fixity of tenure of medical officers of health and sanitary inspectors and the necessary qualifications for such. Secondly, to the discussion initiated by Sir William Thomson on the condition of the Poor-law medical officers in Ireland.

The Public Health Bill was submitted to the President of the General Medical Council by the council and committee of public health of the British Medical Association and by him relegated to the public health committee of the General Medical Council, of which committee I have the honour to be a member. Fixity of tenure for medical officers of health has been the law in Scotland, in Ireland, and in the county of London for some considerable time; it is proposed by the Bill to extend this condition to the rest of England and Wales. The committee found that the Bill was one that it could recommend the Council to approve of, except Clause 2, which states that all medical officers of health should be appointed without any limitation of time. The committee thought that this clause should only apply to those who gave their whole time to the work. It would be more likely to pass into law, as the Local Government Board think it desirable to group together districts and make whole-time appointments, but this would not prevent appointments being made for five, seven, or even ten years. The other clauses stating the qualifications necessary for medical officers of health, such as holding the diploma of public health or having had charge of a district containing a population not less than 50,000, or, failing these conditions, having the consent of the Local Government Board, were approved of. Somewhat the same conditions almost apply, *pari passu*, to sanitary inspectors. It was held that the Council was justified in dealing with this matter, inasmuch as the conditions under which the diploma of public health is granted are under its control. The Council confirmed the finding of the committee.

In regard to the Irish Poor-law medical officers Sir William

Thomson, in a very sympathetic speech, gave notice of a motion which was seconded by Sir Victor Horsley, viz.:—

That a committee be appointed to consider and report to the Council at its next session on the following matter: that a grave danger to the public health in Ireland has arisen from the present condition of the Irish Poor-law medical service; and that the committee be instructed to report on the disabling circumstances under which registered medical practitioners are compelled to fulfil their public professional duties

Sir William Thomson pointed out that the salaries of the Poor-law medical officers did not exceed £150 per annum and sometimes was less. Moreover, in many instances, especially on the west coast of Ireland, the opportunities for supplementing their incomes were almost *nil*. The distances to be travelled were very considerable, there was no certainty of having a pension when no longer able to work, and no provision, either, was made for payment of a substitute when away from home. The duties of medical officers of health have also to be performed by the Poor-law medical officers for a miserable pittance of from £5 to £10 per annum; in this relation I pointed out to the Council that some action might be taken, as it was impossible that any satisfactory work could be done under such conditions. It was finally decided to refer the question to the legal advisers of the Council as to whether it was feasible for the Council to take any action in the matter. At any rate, publicity to what is really a scandal and a danger to the public has been given, and this in itself is a good thing.

From the educational point of view the principal matter of interest was the passing of a resolution, proposed by Mr. Henry Morris and seconded by Mr. George Brown, which was referred to the educational committee—viz., to consider the question of relegating such subjects as physics, chemistry, and biology to the entrance examination—so that when a student commenced his medical studies proper his time would not be taken up by such matters and a knowledge of which would be an excellent preparation for his more advanced studies.

These, I venture to think, are all subjects of the greatest importance to the medical profession. I think the fact that the Council has been willing to entertain and to discuss these subjects shows a very distinct advance in its methods, and that is not quite the fossilised and effete body that some persons deem it. The only other matter of importance is the issuing of a notice to all medical practitioners of the risks they run in allowing their names to be connected with any advertising or canvassing in connexion with medical practice. This notice is given to all practitioners at the time of registration and is also advertised in the medical journals. Perhaps it would be better if it was sent to every man on the Register.

GEORGE JACKSON.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The Metropolitan Borough of Finsbury.—There were in Finsbury during 1905 eight deaths attributed directly to alcoholism and 22 indirectly to the same cause. But, as Dr. George Newman observes, these figures by no means represent the total number of deaths which are attributable, at least in some measure, to alcohol. The deaths of infants "lain upon" in bed are probably due in some cases to drink and it appears very probable that alcoholic excess may in a material degree predispose the human economy to tuberculosis. Whatever may be the precise effect upon health of alcohol the borough council of Finsbury is satisfied that the subject is one which should receive the attention of the public health committee which has been instructed to circulate a handbill drawing attention to the recommendations of the report of the Committee on Physical Deterioration relative to this subject. This committee regarded excess of alcohol in whatever form as largely responsible for physical deterioration. It reduces, in its view, the natural power of resistance to disease, leads to idiocy, epilepsy, and paralysis in the children of intemperate parents, as well as being a relentless enemy to personal health and to national prosperity. We are glad to see that this subject is receiving the official notice of our health authorities, for these authorities have at least the nucleus of a machinery by means of which they may make their views known and this machinery is capable under a tactful administration of multiplying itself almost indefinitely through the agency of lady health visitors and other channels. There is in Finsbury a milk depôt which has been founded by a voluntary society and the last report upon this depôt was regarded by the borough council of such an encouraging nature as to lead it to petition the Local Government Board to legalise such institutions in order that metropolitan borough councils might establish them. We imagine that the President of the Local Government Board will be favourably disposed towards these proposals, seeing that the first milk depôt in the metropolis was, we believe, situated in the constituency for which Mr. Burns is Member. There are certain special features about the Finsbury depôt, the chief one being that the milk is dealt with, as regards "humanisation," bottling, and, where necessary, sterilisation, at the farm itself, an arrangement whereby the introduction of organisms is reduced to a minimum and by which the multiplication of such germs as may have already gained entry to the milk is inhibited. The price of the milk is that current in Finsbury—i.e., 4*d*. per quart—and the infants requiring the milk are introduced to the depôt by medical practitioners, hospitals, nurses, sanitary inspectors, birth registrars, and others. Each child receiving the milk is visited at his own home at least once weekly, an arrangement which is fraught with good results in several directions. It is of interest to note that 37 per cent. of the children were introduced by the lady sanitary inspectors of Finsbury, 33 per cent. by medical practitioners, and 23 per cent. by St. Bartholomew's Hospital. 63 per cent. of the children lived in tenements of two rooms or less, and no fewer than 75 per cent. of the total number of applicants were ill when they were taken to the depôt, a fact which is to be attributed to the circumstance that a large percentage of the children were sent by medical men while others taken by their mothers were ill, underfed, and wasting. Out of 118 infants taken to the depôt 74 attended for more than a month and 60 of these gained over half a pound per month, while the remaining 14 gained less than this amount. There were ten deaths among the 118 infants above referred to but three of these were of children taken to the depôt in a dying condition. Excluding these three cases the deaths yield an infantile mortality of 57·5 per 1000 births. It is often contended that a lower death-rate is to be expected amongst children attending the depôt than amongst children not doing so, the explanation being that the more careful mothers take their children to the depôt. But in this case we are told that the majority of the children were ill before attendance at the institution and hence the lower infantile mortality would appear to be satisfactory, although, of course, as Dr. Newman observes, there are several fallacies in comparison between depôt and outside rates. Some instructive figures are given in Dr. Newman's report with reference to the population of Finsbury which is steadily declining. In 1861 it was 129,031 while in 1901 it was but 101,463; the birth-rate also is declining. Nearly a quarter of the total deaths occurred amongst children under one year of age and nearly one-half of these infants died within the first three months of their existence. Dr. Newman points out that infantile mortality in the first weeks of life is attributable in large measure to physical conditions of the mother which tend to prematurity and debility of the infant, while in the later months of the first year infantile mortality is largely a matter of the unsatisfactory feeding of the infant. In either case he regards infantile mortality as being a *question of motherhood* rather than of sanitation, housing, or poverty. He thinks that all these latter factors exercise but an indirect effect upon the child himself who depends upon the health, intelligence, devotion, and maternal instinct of the mother. During 1905, out of a total number of births of 2886, no fewer than 2220 were visited by the lady inspectors and from the details collected by these officers it would seem that in Finsbury 80 per cent. of the infants are breast-fed during the first three months of life. Only 5 per cent. were fed wholly on cow's milk and 2 per cent. on "condensed" milk or artificial foods. Notwithstanding these figures the infantile mortality rate for 1905 was 148·6 per 1000 births. Pulmonary tuberculosis has been notifiable in a voluntary sense since 1901 and the notifications during the last five years have been as follows: 70, 121, 219, 210, and

178, the majority of these 178 being of inmates in the Highgate Infirmary.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8623 births and 5248 deaths were registered during the week ending Feb. 24th. The annual rate of mortality in these towns, which had been 15·5, 15·5, and 17·2 per 1000 in the three preceding weeks, further rose to 17·3 per 1000 last week. In London the death-rate was 17·5 per 1000, while it averaged 17·2 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 8·4 in Hornsey, 8·8 in East Ham, 9·0 in Walthamstow, 9·8 in Willesden, 10·1 in Leyton, 10·8 in King's Norton, and 10·9 in Great Yarmouth; the highest rates were 22·5 in Plymouth, 22·8 in Stockton-on-Tees, 23·0 in Stockport and in Merthyr Tydfil, 23·3 in Hastings, 24·5 in Middlesbrough, 28·2 in Preston, and 28·5 in Swansea. The 5248 deaths in these towns last week included 388 which were referred to the principal infectious diseases, against 365, 400, and 446 in the three preceding weeks; of these 388 deaths, 123 resulted from whooping-cough, 110 from measles, 56 from diphtheria, 41 from diarrhœa, 33 from scarlet fever, and 25 from "fever" (principally enteric), but not any from small-pox. In Leyton, Norwich, Derby, St. Helens, Huddersfield, Cardiff, and in ten other smaller towns no deaths from any of the principal infectious diseases were registered; while they caused the highest death-rates in Great Yarmouth, Plymouth, West Bromwich, Bury, Preston, York, and Swansea. The greatest proportional mortality from measles occurred in Tottenham, Bury, Blackburn, Preston, York, and Swansea; from scarlet fever in Oldham; from diphtheria in Wolverhampton; from whooping-cough in Southampton, Reading, Plymouth, Handsworth (Staffs.), West Bromwich, King's Norton, Stockport, Warrington, Rochdale, and York; and from diarrhœa in Great Yarmouth. The mortality from "fever" showed no marked excess in any of the large towns. No death from small pox was registered last week, either in London or in any of the large provincial towns. There were five cases of small-pox under treatment in the Metropolitan Asylums Hospitals at the end of last week, against two at the end of the preceding week; three new cases were admitted during the week, against two in the preceding week. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 2912, 2839, and 2734 at the end of the three preceding weeks, had further declined to 2689 at the end of last week; 274 new cases were admitted during the week, against 319, 283, and 281 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 312, 278, and 289 in the three preceding weeks, further rose to 328 last week, but were 134 below the average number in the corresponding periods of the four preceding years. The causes of 71, or 1·4 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, Bradford, Hull, and in 37 other smaller towns. The largest proportions of uncertified deaths were registered in Portsmouth, Birmingham, Liverpool, Blackburn, Preston, Barrow-in-Furness, Sheffield, Sunderland, South Shields, Gateshead, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·5, 16·8, and 18·0 per 1000 in the three preceding weeks, further rose to 19·6 per 1000 during the week ending Feb. 24th, and was 2·3 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 9·1 in Perth and 14·3 in Aberdeen, to 22·9 in Greenock and 25·3 in Dundee. The 671 deaths in these towns last week included 28 which were referred to measles, ten to whooping-cough, six to "fever," five to diarrhœa, three to scarlet fever, and two to diphtheria. In all, 54 deaths resulted from these principal infectious diseases last week, against 47, 47, and 64 in the three preceding weeks. These 54 deaths were equal to an annual rate of 1·6 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 18, 18, and 34 in the three preceding weeks, declined again last week to 28, of which 16 occurred in Glasgow, five in Paisley, four in Edinburgh, and two in Dundee. The deaths from whooping-cough, which had been four and five in the two preceding weeks, further rose to ten last week and included five in Dundee, two in Glasgow, and two in Edinburgh. The fatal cases of "fever," which had been four and two in the two preceding weeks, rose again last week to six, of which three were registered in Glasgow and two in Dundee. The deaths from diarrhœa, which had been 18, 15, and 10 in the three preceding weeks, further declined to five last week, and included two in Dundee. The fatal cases of scarlet fever, which had been three and four in the two preceding weeks, declined again last week to three, all of which occurred in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 113, 108, and 134 in the three preceding weeks, declined again to 125 last week, but were nine in excess of the number in the corresponding period of last year. The causes of 14, or more than 2 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 24·4, 20·5, and 19·0 per 1000 in the three preceding weeks, rose again to 24·4 per 1000 during the week ending Feb. 24th. During the past four weeks the death-rate has averaged 23·1 per 1000, the rates during the same period being 16·0 in London and 17·2 in Edinburgh. The 177 deaths of persons belonging to Dublin registered during the week under notice were 39 in excess of the number in the preceding week and included six which were referred to the principal infectious diseases, against five, one, and one in the three preceding weeks; of these, two resulted from diarrhœa and one each from scarlet fever, diphtheria, whooping-cough, and "fever" but not any from either measles or small-pox. These six deaths were equal to an annual rate of 0·8 per 1000, the death-rates last week from the principal infectious diseases being 1·4 in London and 1·7 in Edinburgh. The 177 deaths in Dublin last week included 27 of children under one year of age and 50 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons considerably exceeded the respective numbers recorded in the preceding week. Five inquest cases and four deaths from violence were registered; and 78, or more than two-fifths, of the deaths occurred in public institutions. The causes of eight, or nearly 5 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING 1905.

COMPLETE statistics relating to sickness and mortality during the year 1905 in each metropolitan borough and in the City of London will be found summarised in the accompanying table. The mortality figures relate to the deaths of persons actually belonging to the various boroughs and are the result of a complete system of distribution of the deaths occurring in the public institutions of London among the boroughs in which the deceased persons had previously resided. With regard to the notified cases of infectious diseases in London during 1905 it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to 7·0 per 1000 of the population, estimated at 4,684,794 persons in the middle of the year. In the three preceding years the rates had been 9·9, 6·0, and 6·1 per 1000 respectively. Among the various metropolitan boroughs the rates last year ranged from 3·5 in Hampstead, 3·8 in Paddington, in Kensington, and in the City of Westminster, 4·7 in Holborn, and 4·8 in St. Marylebone, to 8·8 in Bermondsey, 10·0 in Shoreditch, 10·4 in Stepney and in Poplar, and 10·6 in Bethnal Green. The prevalence of small-pox showed a marked decline last year only 74 cases being notified, against 416 and 491 in the two preceding years; of these 74 cases 13 belonged to Stepney, 13 to Camberwell, nine to Lewisham, seven to Woolwich, and four each to Hackney, Bethnal Green, and Greenwich. During the year 72 cases of small-pox were admitted into the Metropolitan Asylums Hospitals, but none remained under treatment at the end of the year. Scarlet fever was much more prevalent in 1905 than it had been in either of the two preceding years, the number of notified cases being 19,461

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING THE YEAR 1905.

(Specially compiled for THE LANCET.)

Cities and Boroughs.	Estimated population in the middle of 1905.	Notified Cases of Infectious Disease.										Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	**4,684 794**	**74**	**19,461**	**6482**	**9**	**1552**	**14**	**232**	**4972**	**—**	**33,856**	**7·0**	**10**	**1709**	**549**	**54**	**1487**	**—**	**23**	**3**	**3356**	**7894**	**1·70**	**70,443**	**15·1**	**129**
West Districts.																										
Paddington	147,935	2	278	97	—	46	—	7	137	—	567	3·8	—	62	7	3	50	—	5	—	78	205	1·39	1964	13·3	123
Kensington	180,083	—	335	130	—	53	2	4	158	—	682	3·8	—	56	21	9	60	—	13	—	91	250	1·39	2515	14·0	144
Hammersmith	119,037	—	360	242	—	41	—	13	122	—	778	6·6	—	28	11	21	57	—	5	—	80	202	1·70	1647	13·9	135
Fulham	157,210	—	780	286	—	56	—	24	145	—	1291	8·2	—	84	22	24	83	—	10	—	202	426	2·71	2364	15·1	145
Chelsea	74,498	—	228	52	—	16	—	10	78	—	384	5·2	—	5	9	5	22	—	4	—	31	76	1·03	1100	14·8	117
City of Westminster	175,606	2	370	118	—	41	—	12	124	—	667	3·8	—	38	15	5	28	—	4	—	50	140	0·81	2358	13·5	114
North Districts.																										
St. Marylebone	129,453	—	278	131	—	46	—	6	162	—	623	4·8	—	38	15	5	24	—	6	1	54	143	1·12	2000	15·5	88
Hampstead	88,142	—	180	66	—	18	1	2	44	—	311	3·5	—	8	6	3	17	—	2	—	11	47	0·53	821	9·3	94
St. Pancras	236,183	3	986	287	1	72	1	10	227	—	1587	6·7	—	77	27	26	82	—	7	—	135	354	1·50	3713	15·8	135
Islington	342,994	3	1198	351	—	100	—	25	252	—	1929	5·6	1	123	38	34	112	—	16	—	178	502	1·47	4960	14·5	125
Stoke Newington	52,828	1	178	60	—	10	—	1	28	—	298	5·7	—	12	3	5	10	—	—	—	30	60	1·14	679	12·9	122
Hackney	223,479	4	1066	385	1	165	1	8	290	—	1920	8·4	2	83	19	26	65	—	27	—	229	451	1·98	3201	14·0	129
Central Districts.																										
Holborn	56,481	1	156	46	—	21	1	2	36	—	263	4·7	—	11	4	4	17	—	4	—	23	63	1·12	985	17·5	92
Finsbury	98,207	1	478	141	—	46	—	6	115	—	787	8·0	—	41	21	12	32	—	9	—	98	213	2·17	1863	19·0	127
City of London	22,425	—	76	16	—	3	—	—	25	—	120	5·4	—	1	1	2	2	—	—	—	7	13	0·57	390	17·4	149
East Districts.																										
Shoreditch	116,565	2	792	182	—	36	2	9	139	—	1162	10·0	2	63	28	18	88	—	3	—	142	344	2·96	2286	19·7	167
Bethnal Green	130,401	4	794	306	—	61	2	6	202	—	1374	10·6	—	47	26	31	54	—	8	1	127	294	2·27	2418	18·6	151
Stepney	305,466	13	1844	639	7	127	—	15	519	—	3164	10·4	1	157	58	61	137	—	21	1	351	787	2·58	5381	17·7	141
Poplar	170,220	—	991	491	—	71	—	8	208	—	1769	10·4	—	79	29	41	80	—	11	—	211	451	2·65	2992	17·6	153
South Districts.																										
Southwark	208,528	—	776	304	—	74	—	11	295	—	1460	7·0	—	154	28	44	80	—	11	—	183	500	2·39	3848	18·5	148
Bermondsey	129,006	—	752	167	—	41	—	7	160	—	1127	8·8	—	62	17	18	37	—	8	—	143	285	2·21	2408	18·7	148
Lambeth	313,045	—	1025	451	—	75	2	12	293	—	1858	6·0	—	96	31	37	80	—	10	—	211	465	1·50	4646	14·9	115
Battersea	177,532	—	848	192	—	33	—	16	176	—	1265	7·1	—	125	24	12	51	—	6	—	133	351	1·99	2567	14·5	131
Wandsworth	265,392	1	1490	350	—	99	1	18	284	—	2213	8·4	—	89	28	30	76	—	11	—	152	386	1·46	3331	12·6	119
Camberwell	271,240	13	1220	247	—	62	—	24	344	—	1910	7·1	—	82	31	19	68	—	9	—	145	354	1·30	3705	13·7	124
Deptford	114,495	2	609	148	—	34	—	7	153	—	983	8·3	—	16	10	9	19	—	6	—	75	135	1·19	1631	14·3	122
Greenwich	103,493	4	283	147	—	27	—	6	92	—	559	5·4	—	18	5	16	14	—	5	—	75	133	1·30	1383	13·4	119
Lewisham	144,420	9	572	157	—	38	—	11	108	—	895	6·2	4	41	5	8	26	—	6	—	47	137	0·96	1682	11·7	92
Woolwich	125,372	7	515	274	—	26	1	12	83	—	918	7·3	—	13	10	18	16	—	7	—	64	128	1·02	1604	12·8	102
Port of London	—	2	3	—	—	14	—	—	3	—	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

against 12,531 and 13,438. Among the various metropolitan boroughs this disease showed the greatest proportional prevalence in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, Wandsworth, and Deptford. During last year 17,592 scarlet fever patients were admitted into the Metropolitan Asylums Hospitals, against 15,133, 10,808, and 11,629 in the three preceding years; the number of cases remaining under treatment at the end of the year was 3410, against 2327, 1606, and 2349 at the end of the three preceding years. The prevalence of diphtheria again showed a decline; 6482 cases were notified during 1905, against 10,735, 7738, and 7220 in the three preceding years. The greatest proportional prevalence of this disease occurred in Hammersmith, Bethnal Green, Stepney, Poplar, and Woolwich. The Metropolitan Asylums Hospitals contained 701 diphtheria patients at the end of last year, against 927, 734, and 800 at the end of the three preceding years; the number of admissions, which had been 7988, 6158, and 5783 during the three preceding years, further declined last year to 5380. A further marked decrease in the prevalence of enteric fever took place during the year under notice; the number of notified cases, which had been 3412, 2339, and 1896 in the three preceding years, further declined to 1552 last year. Among the various metropolitan boroughs this disease was proportionally most prevalent in Hackney, Finsbury, City of London, Bethnal Green, Stepney, and Poplar. The number of enteric fever patients admitted into the Metropolitan Asylums Hospitals during 1905 was 831, against 1806, 1247, and 1008 in the three preceding years; 78 cases remained under treatment at the end of the year, against 210, 246, and 159 at the end of the three preceding years. Erysipelas showed the highest proportional prevalence in Hackney, Bethnal Green, Stepney, Southwark, and Deptford. The 292 cases of puerperal fever notified during the year were 19 in excess of the number in the preceding year; 25 cases belonged to Islington, 24 to Fulham, 24 to Camberwell, 18 to Wandsworth, 16 to Battersea, and 15 to Stepney.

During the year under notice 70,442 deaths of persons belonging to London were registered, equal to a rate of 15·1 per 1000, against 17·2, 15·2, and 16·1 in the three preceding years; the average rate for the ten years 1895–1904 was 17·8 per 1000. Among the various metropolitan boroughs the lowest death-rates last year were 9·3 in Hampstead, 11·7 in Lewisham, 12·6 in Wandsworth, 12·8 in Woolwich, 12·9 in Stoke Newington, 13·3 in Paddington, 13·4 in Greenwich, and 13·5 in the City of Westminster; the highest rates were 17·5 in Holborn, 17·6 in Poplar, 17·7 in Stepney, 18·5 in Southwark, 18·6 in Bethnal Green, 18·7 in Bermondsey, 19·0 in Finsbury, and 19·7 in Shoreditch. In the five groups of boroughs the rates were 14·0 in the west, 14·3 in the north, 14·5 in the south, 18·1 in the east, and 18·3 in the central. To the principal infectious diseases 7894 deaths were attributed during the year; of these ten resulted from small-pox, 1709 from measles, 549 from scarlet fever, 546 from diphtheria, 1487 from whooping-cough, 234 from enteric fever, three from ill-defined forms of continued fever, and 3356 from diarrhœa, but not any from typhus fever. These 7894 deaths were equal to a rate of 1·70 per 1000; the corresponding rates in the three preceding years were 2·21, 1·75, and 2·14 per 1000 and the decennial average was 2·42 per 1000. Among the various metropolitan boroughs the death-rates from these principal infectious diseases ranged from 0·53 in Hampstead, 0·57 in the City of London, 0·81 in the City of Westminster, 0·95 in Lewisham, 1·02 in Woolwich, and 1·03 in Chelsea, to 2·21 in Bermondsey, 2·27 in Bethnal Green, 2·39 in Southwark, 2·58 in Stepney, 2·65 in Poplar, 2·71 in Fulham, and 2·96 in Shoreditch. The fatal cases of small-pox numbered ten, against an average of 173 in the ten preceding years; of these ten cases, four belonged to Lewisham, two to Hackney, two to Shoreditch, one to Islington, and one to Stepney. The 1714 deaths referred to measles were 775 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Fulham, Shoreditch, Stepney, Southwark, and Battersea. The 549 fatal cases of scarlet fever were 46 fewer than the average for the preceding ten years; the greatest proportional mortality from this disease occurred in Finsbury, Shoreditch, Bethnal Green, Stepney, and Poplar. The 546 deaths from diphtheria were less than a third of the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Bethnal Green, Stepney, Poplar, and Southwark. The 1487 fatal cases of whooping-cough were 445 below the average number in the preceding ten years; the highest death-rates from this disease were recorded in Hammersmith, Fulham, Shoreditch, Bethnal Green, Stepney, and Poplar. The 237 deaths referred to different forms of "fever" showed a decline of 364 from the corrected average number; among the various metropolitan boroughs "fever" was proportionally most fatal in Kensington, Hackney, Holborn, Finsbury, Bethnal Green, and Stepney. The 3356 fatal cases of diarrhœa were 576 fewer than the average for the preceding ten years; this disease showed the greatest proportional mortality in Fulham, Hackney, Shoreditch, Stepney, Poplar, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last year from the principal infectious diseases was 30·1 per cent. below the average.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 129 per 1000 last year, against 139, 130, and 144 in the three preceding years. The rates of infant mortality in the various metropolitan boroughs ranged from 88 in St. Marylebone, 92 in Holborn and in Lewisham, 94 in Hampstead, and 102 in Woolwich, to 148 in Southwark and in Bermondsey, 149 in the City of London, 151 in Bethnal Green, 153 in Poplar, and 167 in Shoreditch.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Deputy Inspector-General H. T. Cox is promoted to the rank of Inspector-General, with seniority of Jan. 25th. Fleet Surgeon J. O'B. Williams is promoted to the rank of Deputy Inspector-General, with seniority of Jan. 25th.

The undermentioned Staff Surgeons have been promoted to the rank of Fleet Surgeon in His Majesty's Fleet:—Frederick William Parker, George Goss Borrett, Walter Henry Skinner Stalkartt, George Alexander Stuart Bell, and John Ambrose Keogh (dated Feb. 21st, 1906).

The following appointments are notified:—Staff Surgeon E. Sutton to the *President*, for hospital course. Surgeons: A. R. Davidson to the *Egeria*, additional and on recommissioning; G. O. M. Dickenson to the *Triton*, lent for surveying season; and L. C. Robinson to the *Dwarf*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. H. Hall is taken on the strength of the London District as recruiting medical officer. Major W. C. Poole is posted at Cork for duty. Captain H. S. Roch is posted to Cork. Captain E. T. F. Birrell joins at Aldershot and is posted to the Cambridge Hospital for duty. Captain J. A. Hartigan joins the Aldershot Command and is posted for duty as medical officer in charge of the Detention Hospital at Deepcut and Blackdown.

HONOURABLE ARTILLERY COMPANY OF LONDON.

Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel W. C. James to be Surgeon-Lieutenant-Colonel (dated Feb. 5th, 1906).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Warwickshire: Surgeon-Lieutenant G. Haddow to be Surgeon-Captain (dated Feb. 24th, 1906). 1st Worcestershire: George Mackie to be Surgeon-Lieutenant (dated Feb. 24th, 1906).

Royal Engineers (Volunteers): 1st Gloucestershire: Surgeon-Captain W. Cox to be Surgeon-Major (dated Feb. 24th, 1906). The Forth Division (Submarine Miners): Surgeon-Major H. Hay resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Feb. 24th, 1906).

Infantry: 4th Volunteer Battalion the Cameronians (Scottish Rifles): Surgeon-Captain A. F. Wilson-Gunn resigns his commission (dated Feb. 24th, 1906). 2nd Volunteer Battalion the Duke of Cornwall's Light Infantry: Surgeon-Captain J. C. Mackay resigns his commission (dated Feb. 24th, 1906). 1st Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment): Henry Lonsdale Gregory to be Surgeon-Lieutenant (dated Feb. 24th, 1906).

THE CARE OF THE SICK AND WOUNDED IN WAR.

Under the above heading Colonel F. Howard, A.M.S., retired, senior medical officer of the London Recruiting

District, contributes to the *Army and Navy Chronicle* what he calls a "bird's eye view" of war in its medical aspects. The article is avowedly written in a popular style but it presents a very good summary of the work done by the Medical Department of the Army for the soldier on the battle field and his subsequent treatment. Pictures of a hospital tent, an ambulance wagon, a sick transport wagon, and an American hospital car accompany the article.

THE VITAL STATISTICS OF THE TROOPS SERVING IN FRENCH COLONIES.

It is only of late years, says Dr. Alvernhe in the *Archives de Médecine et de Pharmacie Militaires* for January, 1906, that we have been afforded any trustworthy information regarding the sanitary condition of our colonies and the health of our colonial troops. In 1897 M. Burot and M. Legrand published a pamphlet dealing with the colonial mortality of the quinquennium 1891–95, but, unfortunately, the incidence of sickness did not come within the purview of their interesting work. In 1901 the Marine Minister, complying for the first time with the law of 1852, issued precise and complete sanitary statistics embracing not only the fleet but also the colonial forces for the year 1899, but owing to the transfer of colonial military administration to the War Department the latter part of this valuable work was discontinued during the next three years. The Colonial Minister has now to a certain extent remedied this regrettable omission, but the report for 1903 which has just been issued under his auspices is concerned with the colonial forces only whilst they are out of France, a separate report dealing with the men at home being drawn up by the Minister for War. The *Statistique Médicale*, as the combined reports are officially designated, consists therefore of two distinct parts severally prepared, but happily the forms are identical, as that in use for 60 years in the regular army has been adopted in both cases. Medical officers, as Dr. Alvernhe feelingly observes, being accustomed to the long established document will consequently be spared the trouble of mastering the intricacies of a new form. In 1903 the average strength of the colonial troops on duty at various stations in France was 23,892 men, the admissions to hospital were at the rate of 946 per 1000, not including the "*malades à la chambre*," while the death-rate from all causes was 6·94 per 1000. Excluding deaths by suicide and from accident, the latter rate was 5·65 per 1000. In the regular army serving in France the death-rate for the same year was 4·17 per 1000, or excluding accidents and suicides, 3·65 per 1000. The vital statistics of the troops actually serving abroad in 1903 are shown in the subjoined table:—

French colonial troops stationed at—	Europeans.				Natives.		
	Average strength.	Sickness per 1000.	Deaths per 1000	Invalids per 1000.	Average strength.	Sickness per 1000.	Deaths per 1000.
1903.							
Western Africa ...	1,962	1,181	21·4	179·9	5,138	282	12·8
Annam-Tonkin ...	10,248	886	24·3	118·3	13,777	606	21·9
China Reserve Brigade	2,771	848	11·5	101·4	1,987	478	9·4
China Army of Occupation	1,672	924	10·1	61·0	—	—	—
Cochin China	2,121	1,285	33·0	205·5	1,625	1,063	47·3
Madagascar	4,812	1,091	17·6	187·2	7,202	376	12·9
Réunion	862	878	10·4	92·8	—	—	—
Martinique	914	1,611	10·9	214·4	—	—	—
New Caledonia ...	738	365	12·3	79·6	—	—	—
Tahiti	103	335	0	19·4	—	—	—
St. Pierre and Miquelon	14	143	0	0	—	—	—
India	4	0	0	0	142	796	7·0
Tchad	72	986	27·7	13·8	750	811	22·3
Guadeloupe	173	2,132	11·5	404·5	—	—	—
Guiana	194	644	5·1	242·2	—	—	—
—	26,550	993	19·8	139·7	30,621	523	18·7

In addition to the sickness indicated above, all of which was of a serious character, a very large number of men were relieved from duty on account of more or less trivial affections. Amongst the Europeans the cases treated during the year "*à la chambre*" amounted to 3067 per 1000 of strength and amongst the natives to 2751 per 1000. The average duration of the hospital cases was 30 days for Europeans and 17 for natives. Excluding the mortality from suicide and accident the European death-rate was 16·6 per 1000 and that for natives 16·1 per 1000 during 1903. Violent deaths seem consequently to have been responsible for death-rates of 3·2 and 2·6 respectively. A fourth part of the European mortality was traceable to malarial affections, which were also the cause of 52 per cent. of the invaliding. The extremely high death-rate amongst natives in Cochin China was due to beri-beri. 168 cases of that disease occurred with 37 deaths, but happily no Europeans were attacked. In Madagascar beri-beri caused 13 deaths and it is worthy of notice that the rice supplied to that colony came from Cochin China. In conclusion, Dr. Alvernhe says that although a death-rate of 19·8 per 1000 is a high one, and, moreover, does not represent the real mortality, as fatal cases occurring amongst invalids in Europe should be included, still, compared with the statistics of previous years, it affords grounds for satisfaction. According to the work of M. Burot and M. Legrand already alluded to, the colonial mortality during the five years 1891–95 was at the rate of 34·2 per 1000 per annum.

Correspondence.

"Audi alteram partem."

THE AURICULO-VENTRICULAR BUNDLE OF HIS.

To the Editors of THE LANCET.

SIRS,—In July of last year Dr. James Mackenzie of Burnley sent me the heart of a patient in whom there had been observed a marked disturbance of the auriculo-ventricular rhythm. He wished me to examine minutely the auriculo-ventricular bundle of His which is now regarded by many as the muscular path by which the auricular wave of contraction passes to the ventricle. In answer to a note asking for some details of this muscular bundle, of which I was at that time in total ignorance, Dr. Mackenzie sent me a paper,[1] which had quite recently appeared, by Professor H. E. Hering of Prague.

From that paper I learned that Dr. W. His, junior, had described the bundle in 1893; that Professor Hering before commencing his experiments went to Leipzic and had it demonstrated to him on the heart; that Retzer had observed and measured it in the adult human heart (18 millimetres long, 2·5 millimetres broad, 1·5 millimetres thick—thus a strand quite large enough to be easily visible to the naked eye); and that Bräunig had seen it in the child's heart and that it there measured 1 millimetre in its greatest diameter. It has been investigated also by Erlanger and its significance accepted by physicians in the United States as you point out in a leading article in THE LANCET of Jan. 27th, p. 238.

Professor Hering gives minute directions as to the situation of His's bundle, but since the heart is the most difficult of all the organs of the body to visualise accurately I will expand Hering's description so that readers of THE LANCET, if they are so minded, may verify its existence or non-existence as the case may be. The guide to it is the septal cusp of the tricuspid, the base of which is attached just below the septum of the auricles. At the anterior end of the attachment of the septal cusp is the pars membranacea septi—the closed interventricular orifice. The bundle of His lies under the basal attachment of the septal cusp and passes from the interauricular to the interventricular septum just behind the pars membranacea septi, so there is no need for a search over a wide area.

Having studied rather minutely the arrangement of the heart musculature for some years and searched for a definite muscular path between auricles and ventricles, I was surprised that I had missed such an extensive muscular connexion as is described by Retzer and accordingly, with the minute directions of Hering to guide

[1] Nachweis dass der His'sche Uebergangsbündel Vorhof und Kammer des Säugethierherzens functionell verbindet, Archiv für die Gesammte Physiologie, Band cviii., 1905.

me, I renewed my search in the human heart, for it is inconceivable that the cardiac impulse should cross the auriculo-ventricular junction by a pathway in man which is different from that of other mammals. With the naked eye I completely failed to find the bundle of His in fresh or in formalin-hardened hearts. It is true that the base of the septal cusp is widely adherent to the interventricular septum and that the circular musculature of the auricular canal descends for five, ten, or even 15 millimetres on the inner aspect of the cusp and thus appears to be applied to, and even continuous with, the ventricular musculature, but a microscopic investigation showed in every case that the fibrous tissue of the septal cusp intervened between the auricular and ventricular musculature.

With the coöperation of Mr. W. Chesterman a series of vertical sections of the auriculo-ventricular part of the septum were made of three human hearts from the pars membranacea in front to the posterior base of the heart, but in not one of over 100 sections was any direct union between the auricular and ventricular musculature observed. The stains used were van Gieson's and eosin and logwood.

The septal site in which the bundle of His is said to lie is the last part of all the auriculo-ventricular union in which an embryologist or comparative anatomist would expect to find a muscular connexion between auricle and ventricle. The musculature of the auricular and ventricular septa is separated by the tissue of the endocardial cushions from the very beginning of their development; from these are developed the adjacent parts of the mitral and tricuspid valves and any muscular connexion found in the cardiac septum must be a secondary formation brought about by the perforation of the fibrous basis of the endocardial cushions. The central fibrous body of the heart, situated behind the origin of the aorta and between the auricular and ventricular septa, is also formed from the endocardial cushions and provides a fulcrum from which the musculature of the cardiac septum acts. Into it the muscle fibres of the interauricular and interventricular septa can be traced; in it these may be in close proximity but they never fuse or become continuous. From the comparative anatomy point of view the bundle of His has this against it: it is situated in the most recently evolved part of the heart—not the position one expects to find a primitive conduction path.

Still the fact remains that His, Humblet, Erlanger, and Hering found that the situation of the bundle of His was the only point in the mammalian heart which gave a definite disassociation of the auricular and ventricular rhythm when a limited section was made. What is the explanation? I have none to offer except to point out that the part of the auricular septum just behind the position of the bundle of His represents morphologically the junctional wall of the tortoise's heart and by that wall, as Gaskell demonstrated long ago,[2] the cardiac nerves reach the ventricle. Are, then, the effects obtained by section of the cardiac septa due to the division of a band of musculature?

There may be an error in my observation or in my technique. I simply draw attention to the fact that I have failed to find a muscular bundle in the position described by His and Hering and that before it is accepted as the anatomical basis of Stokes-Adams disease its constancy must be proved. The fact that it has been seen by several observers does not have so much weight when one remembers that the tubercle of Lower, which has been described in anatomical text-books as a constant feature of the human heart for over 200 years, and which is situated quite close to the position in which the bundle of His is said to lie, has no existence in the human heart. The heart figured by Lower[3] is certainly not a human heart but that of a sheep or a dog in which the superior and inferior vena cava enter the auricle close to each other and at an extremely acute angle; the auricular musculature in the angle becomes a prominent muscular ridge and it was this muscular ridge which Lower described. Has anyone seen a "small knob-like prominence" or anything that could reasonably pass as a tubercle on the wall of the right auricle below the orifice of the superior vena cava? At least it is well to have the existence of the bundle of His verified at the very commencement, so that it may not have a circulation of two centuries before it is called in as false coin.

Some days after writing the part of this letter given above Dr. James Mackenzie sent me a cutting from the *Münchener Medizinische Wochenschrift* of Sept. 26th, 1905, p. 1904, in which Dr. L. Aschoff gave an account "Ueber die Untersuchungen des Herrn Dr. Tawara, *die Brückenfasern betreffend und Demonstration der zugehörigen mikroskopischen Präparate.*" From Aschoff's account I learned that the bundle of His arose from the musculature of the coronary sinus and passed forwards in the interauricular septum to the central fibrous body of the heart, on which it formed a plexus of fibres. From this plexus a distinct bundle breaks through the fibrous body into the interventricular septum and after a very short course divides, to be distributed as a sub-endocardial muscular plexus on the right and left sides of the interventricular septum. The auricular part of the bundle is made up of very fine, richly nucleated fibres and the fibres of the ventricular part belong to the Purkinje type of fibres. With this account to guide me I renewed my search with success; and since it is probable that others may find the initial difficulty I experienced in dealing with this intricate region of the heart I propose to give briefly by the aid of a diagram some of the points which have proved most useful to me.

a, Septal cusp of tricuspid. *b*, Infundibular cusp. *c*, Ventricular part of membranous space. *d*, Auricular part of membranous space. *e*, Position of bundle of His in auricle. *f*, Position of bundle of His in ventricle. *g*, Fibrous band of Eustachian valve. *h*, Fibrous band of Thebesian valve. *k*, Annulus ovalis. *l*, Septum ovale. *m*, Eustachian valve. *n*, Coronary sinus. *o*, Thebesian valve. *p*, Base of right ventricle. *q*, Base of right ventricle (infundibular part). *r*, Wall of right auricle. *s*, Aorta. *t*, Interventricular septum.

In the figure I give a diagrammatic representation of the part of the heart in which the bundle of His lies, viewed from the right side. The point which should be sought for first is the angle of union between the septal (*a*) and infundibular (*b*) cusps of the right auriculo-ventricular valve. If the angular junction of these two cusps be removed by a knife (see figure) two structures are exposed which should be identified, (1) the ventricular area of the pars membranacea (*e*), and (2) the fibro-muscular tissue of the interventricular septum which forms the *inferior* margin of the membranous space (*f*). The membranous space (*d* in figure) extends above the base of the septal cusp within the septal wall of the right auricle and may be named the auricular area of the membranous space. If a pin be thrust through the auricular part of the space it enters the left ventricle just below the orifice of the aorta (*s* in figure), to be quite exact, just below the aortic semilunar cusp which is implanted on the base of the mitral valve, and may therefore be named the *mitral cusp*; if, on the other hand, the pin be thrust through the ventricular part (*e*) it appears below the aortic orifice immediately below the junction of the mitral cusp mentioned above and the right septal cusp of the aorta. Having located the position of the membranous space the orifice of the coronary sinus (*n*) is next found; the distance of the orifice from the membranous part varies from half an inch to one and a quarter inches and the distinctness with which it is marked is also variable but usually representatives of the Thebesian (*o*) and Eustachian (*m*) valves form its margins. The first step in searching for the bundle of His is to remove the endocardium of the interauricular septum from the membranous part (*d*) to the orifice of the coronary sinus (*n*). In the musculature beneath the endocardium will be found two fibrous bands (see *g*, *h*, in figure) which are of great interest but, so far as I know, have never been described. These bands begin in

[2] Text-book of Physiology, edited by E. A. Schäfer.
[3] Tractatus de Corde, 1728, editio sexta.

the membranous space and run through the musculature of the septum to the Eustachian (*g*) and Thebesian (*h*) valves and are of importance because they undoubtedly represent the lower or auricular fornix of the right and left venous valves which guard the orifice of the sinus venosus of the embryonic heart and which therefore inform us that the orifice of the sinus venosus in the human heart reached forwards as far as the membranous space. Out of 12 hearts I was able to dissect out the bundle of His in three of them by the naked eye; fresh hearts are useless; specimens must be hardened in a 5 per cent. solution of formalin; those which have been treated by the Kaiserling method serve very well for the purpose. The position of the bundle is shown in the figure (*e*, *f*). I found it best to begin by cutting the base of the septal cusp in line with the inferior margin of the ventricular part of the membranous space and then raising the fibrous tissue covering that margin; it is beneath the fibrous tissue that the bundle of His terminates (*f*). At the base of the septal cusp the bundle perforates the central fibrous body of the heart and joins the musculature of the auricular canal. Tawara traced it to the musculature of the sinous venosus, but in the three cases in which I successfully followed it the bundle joined the superficial fibres of the auricular canal, as is shown in the accompanying figure.

Having learned the exact position of the bundle I cut out, for microscopical examination, the auriculo-ventricular part of the cardiac septum which contains the membranous space and the adjoining muscular tissue in which the bundle of His lies, and placed the block so cut out on the microtome, so that the inferior margin of the membranous space lay in the plane of section. When cut in this plane I found a bundle of auricular fibres perforating the central fibrous body in each one of the five hearts examined. The auricular fibres of this bundle are, as Tawara described, fine, multinucleated with indistinct striation; I observed also, as he did, that the fibres were accompanied by numerous nerve fibres, and there are cells, too, which have the appearance of ganglionic nerve cells. A large artery (with a calibre of 1 to 1·5 millimetres) invariably perforates the central fibrous body just behind the bundle; the artery is always bigger than the muscular bundle at the point of perforation.

In my previous search I had looked for a complete continuity of the auricular and ventricular fibres. As Tawara asserts, there is no direct continuity of ordinary auricular and ventricular muscular fibres. The auricular bundle, after perforating the central fibrous body, ends in a layer or collection of cells which are of peculiar type and resemble Purkinje's cells, but I cannot trace the wide subendocardial distribution of these cells which has been described by Tawara. Thus it will be seen that at the point where experimental sections of the septum are made to produce arhythmia of the cardiac chambers there is not only a muscular bundle but nerves and a large artery; how much of the result of section is due to cutting of the adjacent structures is certainly a point which should be investigated. If the bundle of His commenced in the coronary sinus, a direct remnant of the sinus venosus, then one would expect the wave of contraction, which spreads from the sinus to the rest of the auricle, to reach the ventricle almost as soon as the auricle. On the other hand, if it arises from fibres of the auricular canal, the last part of the auricle to contract, then the spread of the contraction wave through this bundle becomes more easily understood.

An investigation into the development of the bundle of His and into its comparative anatomy will probably help us better to understand its nature. The fibrous tissue between the mitral and tricuspid valves, which is perforated by the bundle, is believed to be formed from the endocardial cushions; if this belief is rightly founded then the bundle of His would appear to be developed by the formation of a new muscular connexion between auricle and ventricle.

I am, Sirs, yours faithfully,

A. KEITH.

London Hospital Medical College, E., Feb. 3rd, 1906.

CONVALESCENT HOMES ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—We should be glad to be allowed to recall the circumstances under which the Convalescent Homes Association was founded. We owe much to Lord Lytton and his committee of the Home of Recovery for calling attention to the great need for more beds for surgical convalescents after operation wounds and to the inadequacy of the present convalescent system to supply the increasing needs of hospitals. Lord Lytton's remedy was to collect a large sum of money to build and endow a small convalescent hospital of 21 beds. It has been considered that the same objects could be better and more economically attained if the existing convalescent homes could be persuaded to devote some beds to this special purpose. This will no doubt entail additional expenditure on the part of the convalescent homes but we are assured that many hospitals would be willing to secure these increased benefits by paying a higher rate for their convalescent surgical patients. In the case of homes that are willing to provide such special beds but unable to do so for want of funds, an appeal may well be made to the charitable public for further support.

A constitution and rules have been formulated and an executive committee is engaged in carrying out the objects of the association. The council has found that there is some hesitation on the part of both convalescent homes and hospitals to become members. It is thought that this may be due in a measure to misapprehension as to the ultimate objects in view, groundless suspicion on the part of some homes that their independence of management will be interfered with, and doubts on the part of hospitals as to the benefits they will obtain. The initial efforts of the association have already been attended with success, the offer of beds for surgical cases having been obtained from some of the more important homes, and it is believed that, with time, a very much larger number of special beds will become available. We contend that, in this direction alone, the Convalescent Homes Association will confer a benefit upon every London hospital and relieve the congestion that prevails, and, moreover, the influence of the association will be exerted in many ways to discourage the use of convalescent institutions as holiday homes and to promote economy and concerted action. The work of the association cannot be carried on without a small expenditure and if a larger number of homes and hospitals would join and pay the small subscription proposed we feel sure that the benefits their patients would derive would amply repay them.

Up to the present a considerable number of convalescent homes have joined and amongst the hospitals are St. Bartholomew's, St. Thomas's, and King's College. We shall be glad to receive applications from any convalescent home or any hospital which is willing to join us in securing the above-mentioned advantages for patients in need of them. Communications should be addressed to the secretary of the Convalescent Homes Association at 32, Sackville-street, W.

We are, Sirs, your obedient servants,

W. S. CHURCH,
Chairman.
M. O. FITZGERALD,
S. H. HABERSHON,
Honorary Secretaries.

Feb. 27th, 1906.

AN AFTER-CARE DESIDERATUM.

To the Editors of THE LANCET.

SIRS,—One of the speakers at the recent meeting of the After-care Association offered a suggestion which appears well worth the consideration of the authorities of county asylums and of those generally concerned with the administration of the lunacy laws. The After-care Association is a small body with very limited means but it has proved itself the pioneer of a system of the greatest advantage in securing the completion of the cure in persons who have been discharged from county asylums. There may be a great difference between the person who leaves an asylum actually recovered and the one who is only recovered in a legal sense. The latter having lost all the symptoms of the insanity for which he was placed under certificates cannot be further immured. However advisable it is that he should have the benefit for a shorter or longer time of fresh air and good food he cannot be detained, partly because he is legally well and partly because of the pressure on the accommodation; moreover, it is not always clinically advisable that a patient who has for the time recovered the use of his mental faculties should remain associated with those who are still impaired; nor is it right that he should remain longer than is necessary under the fetters of certificates. Some of these discharged patients are taken up by the After care Association to go through a process of annealing which shall fit them for their life duties, shall improve their bodily condition, and prevent the tendency to a relapse. But good as the objects of the society

are the means are inadequate to do more than to touch the fringe of this great evil, the premature discharge of convalescents, and it scarcely seems right that public institutions maintained by rates and supervised by legally constituted authorities should be supplemented in a haphazard way by a private charitable society. The existing plan of procedure is for the asylum authorities to pay a small sum per week to the society, which is supplemented by the society out of its own funds, the discharged patient being placed in a cottage home or otherwise assisted as may be deemed advisable. But the society has some difficulty in finding suitable homes and it is admitted that the number of cases relieved is small in proportion to the demand and that its scope is limited by the inadequacy of its financial condition.

It is proposed that when a patient has sufficiently recovered to be discharged from certificates, though it is still advisable that he should remain some time longer for general dietetic and hygiene treatment, the asylum authorities should have the power to release him from statutory obligations and should permit him to remain as long as is considered necessary in conditions which allow him freedom and responsibility under the best auspices. The means for carrying out the proposal are unique and to hand. The asylums are already placed in ideal hygienic conditions and nothing more is required than the power to erect or to allocate a small house in the grounds of the institution where good food, exercise, occupation, and a system of authorised absence on parole, with the consciousness of being free from legal restraint and with the liberty of social reinstatement, should have the happiest results. To effect this recommendation a clause in a new Lunacy Bill would be needed, but there would probably be no difficulty in getting it passed, because it is evident that the Commissioners in Lunacy themselves and many of the authorities of asylum administration are in strong sympathy with the objects of the society and are supporters of its policy.

I am, Sirs, yours faithfully,

Harley-street, W., Feb. 22nd, 1906. T. CLAYE SHAW.

INFANT FEEDING AND EPIDEMIC DIARRHŒA.

To the Editors of THE LANCET.

SIRS,—I am glad to note from an editorial article in THE LANCET of Feb. 24th, p. 533, that the inquiries of Dr. J. E. Sandilands tend to confirm the theory I first suggested in 1902 and again (before the Epidemiological Society) in 1903, that *the principal agents* of infection in summer or epidemic diarrhœa are common house flies.

I have twice contributed to your own columns on this subject—most recently, I think, in 1904.[1] In the latter contribution (at p. 1044) I once more point out how the diarrhœa curve coincides with the life-history of the house fly (musca domestica). Again in August of last year you commented in an annotation[2] on my work in connexion with "Flies as Agents in the Spread of Disease," referring especially to my view that the conditions which Ballard showed to influence epidemic diarrhœa were exactly the conditions which were necessary for the free multiplication of musca domestica.

Dr. Sandilands's laboratory experiments are interesting. It has been my intention for the last three or four years to carry out some investigations on rather different lines, but have hitherto been unable to owing to more pressing calls on my time. I hope, however, if spared, to accomplish some work in this direction during the ensuing year.

I am, Sirs, yours faithfully,

Southend-on-Sea, Feb 23rd, 1906. J. T. C. NASH.

LIFE INSURANCE FORMS: A PRECAUTION.

To the Editors of THE LANCET.

SIRS,—I think that all life insurance forms connected with the medical examinations of candidates should include a query as to the "temperature" of the proposer when presenting himself for examination. It has happened on two occasions, even in the limited practice of an unofficial and occasional examiner of lives, that on taking the applicant's temperature—on suspicion as it were—I have found a considerable increase, due in my cases to commencing influenza. It is manifest that a sick man, although he might not know himself to be more than "a little off colour," should at least be deferred for a week or so.

I am, Sirs, yours faithfully,

GEORGE H. R. DABBS, M.D. Aberd.

London, E.C., Feb. 26th, 1906.

FATAL RESULTS FROM SUBCUTANEOUS INJECTION OF METALLIC MERCURY.

To the Editors of THE LANCET.

SIRS,—Under the above heading you published in your issue of Feb. 17th a note regarding a case of death after four small injections of grey oil reported to the Société Médicale des Hôpitaux of Paris by M. Le Noir and M. P. Camus. As the treatment of syphilis by intramuscular injections is again being advocated in England it is well that its dangers should be appreciated. But I fear that this fatal case may prevent many from venturing upon this line of treatment and may be the means of leading some who have just begun to adopt it but have not yet had sufficient experience of it to realise its pre-eminent superiority over all other methods to abandon it. It is therefore well to ascertain if possible why the patient died. Probably in the case in question there was some grave fault in the eliminating organs of the body which prevented the mercury escaping from the system. The urine, it is stated, after the patient was salivated was very albuminous, but it would not seem that the condition of the kidneys had been ascertained before treatment began. This is a most essential point, for to inject mercury into a patient whose kidneys are not functioning properly is to court disaster. Also, it does not seem that any proper precaution had been taken to ascertain whether one dose of mercury had been absorbed before another was administered, and it is more than possible that the injections were not *intramuscular* but simply *subcutaneous*. The movement of the gluteal muscles will insure the diffusion of the mercury and so facilitate its gradual absorption, while mercury injected subcutaneously lies *in situ* for an indefinite period and may form a reservoir from which sudden and disastrous absorption may occur at a later date.

Recently Dr. W. C. Oram made radiographs of several cases treated with grey oil by Dr. G. G. Stopford Taylor and myself at the Liverpool Skin Hospital. 16 centigrammes of grey oil injected deep into the buttocks of a man had disappeared completely in eight days, while grey oil injected into the subcutaneous tissues of a woman with very fat buttocks was quite distinct after three weeks and faintly visible at the end of five weeks. Since May, 1904, when Dr. Stopford Taylor introduced the intramuscular treatment with grey oil into Liverpool between 1500 and 2000 injections have been administered in his clinique. We have had no accidents, though, as a rule, we have given larger doses of mercury than were given in the fatal case which you report, and the larger our experience the more firm is our conviction that the intramuscular is the most certain and efficient method of treating syphilis. Lambkin's vast experience fully supports this view and it would be a most unfortunate thing if one accidentally fatal case such as you report, where other things than the injections may have been to blame, should deter the profession in this country from giving the method a thorough and extended trial.

I am, Sirs, yours faithfully,

R. W. MACKENNA,
Assistant Physician, Liverpool Skin Hospital.

Liverpool, Feb. 19th, 1906.

THE ETHICS OF THE MEDICAL PROFESSION IN RELATION TO SYPHILIS AND GONORRHŒA.

To the Editors of THE LANCET.

SIRS,—I have read with much interest Mr. Dudley Burney's views upon the above subject and regret to see that he apparently prefers to allow matters to remain as they are rather than that any attempt should be made for legislative interference with what he calls "the natural order of things." I do not know whether Mr. Burney has ever read Hill and Cooper's work upon "Syphilis and Local Contagious Disorders," but should he not have done so I would recommend him to peruse those pages of the book which are

[1] THE LANCET, Sept. 24th (p. 892), and Oct. 8th, 1904 (p. 1043).
[2] THE LANCET, August 26th, 1905, p. 619.

devoted to "the Contagious Diseases Acts." I think that a careful study of the facts enumerated therein should carry conviction to all unbiassed minds as to the sanitary benefits which the enforcement of the Acts conferred upon those districts in which they were operative. Mr. Burney seems to think that "a mental myopia" is the necessary corollary of special training, whatever that phrase may mean. But I can assure him that no such a curriculum is necessary to enable the average medical mind to recognise the far-reaching effects of venereal disease upon the population. Medical students, as a rule, recognise the ubiquity and gravity of these maladies by the time they have finished their clerking and dressing. For their ravages are constantly to be noted in every department of medicine and surgery—a fact which, I think, is admitted by everyone having an intimate knowledge of general hospital practice. Syphilis is a malady which may be said to be antagonistic to any rigid specialism, for it impartially invades the quasi-special provinces of eye, ear, throat, nose, skin, children, and nerves with the same freedom as that with which it assails the realms of gynæcology or general medicine and surgery. Perchance Mr. Burney regards the evolution of such conditions as cancer of the tongue, necrosis of bones, paralysis, panophthalmitis, iridocyclitis, aneurysm, salpingitis, sterility, lunacy, surgical kidney, and the many other sequelæ of venereal disorders as unworthy of preventative medico-legal consideration, since he scathingly resents "being gravely told of the fearful perils of the streets," and apparently objects to any "rigorous measures being demanded to check its progress by State interference." If the above is not a grave indictment I cannot well imagine what he would call one.

The Contagious Diseases Acts certainly restricted disease in this country, notwithstanding all the disparaging comparisons of continental failure which may be brought against them. Personally, I would be the first to admit that these Acts required improvement as to their working, for many deplorably unfortunate incidents arose through the method of their enforcement. One would imagine that it is possible to devise some plan of official supervision of subordinates which would curb the irresponsibility of individual denouncing power. As regards the interference with the liberty of the subject I fail to see much difference between consigning a small-pox patient who is carried off to a hospital whether he likes it or no to immunising a prostitute for the purpose of curing her of venereal disease. Mr. Burney need only think of the interference and inquisition of the Income Tax to see that the State regulation of one's life and private affairs is not a legal novelty. Allow me to say that if one is to expect really good effects from a Contagious Diseases Act it is requisite for it to be general throughout the country and not to restrict its operations to a few chosen localities; for therein lies the certainty of failure. I think Mr. Burney will admit that the Contagious Diseases Acts were not repealed upon the action of the medical profession as a body.

I am, Sirs, yours faithfully,

Feb. 27th, 1906. CAMPBELL WILLIAMS.

THE TURVEY TREATMENT COMPANY (1905), LTD.

To the Editors of THE LANCET.

SIRS,—In a letter published by you in your issue of Feb. 24th from the solicitor to the Turvey Treatment Company, Ltd., I note the following passage: "..... at the same time my clients challenge you to point out any one case where anyone has been treated by their methods which has not been successful."

Lest any of your numerous readers may be deceived by this ridiculous claim to infallibility may I be permitted to bear witness to one striking failure? At the earnest request of his relatives I consented to try the Turvey treatment upon a patient of mine who had been an inebriate for some years. The conditions were exceptionally favourable to the success of the treatment, as the patient was at the time laid up in my Home suffering from paresis of the legs and was in consequence absolutely under control. The treatment was carried out under my personal supervision in exact accordance with the directions issued by the proprietors of the Turvey treatment, not a single dose being missed, and every possible help being given in the way of diet, skilled nursing, and massage. The result, however, was an absolute failure; within a few hours of regaining his liberty the patient was drinking as heavily as ever and continued to do so until the neuritis returned and he again lost the use of his legs. I did not trouble to report the result to the Turvey Co., so possibly they added this case to their list of "cures."

I am, Sirs, yours faithfully,

Harley-street, W., Feb. 23rd, 1906. J. HENRY CHALDECOTT.

INDECENT PUBLICITY: A REPUDIATION.

To the Editors of THE LANCET.

SIRS,—We desire to repudiate together and individually all responsibility for the use made of our names and our report in an account of certain lunacy proceedings published in the *Daily Mail* of Saturday, Feb. 24th, and subsequently reproduced in other periodicals.

We are, Sirs, yours faithfully,

ROBERT JONES.
THOS. D. LISTER.

Feb. 25th, 1906.

THE DISEASES OF CHILDREN.

To the Editors of THE LANCET.

SIRS,—In your issue of Feb. 24th in a review of the fifth edition of the above work by Dr. H. Ashby and Mr. G. A. Wright it is remarked that infantilism or ateleiosis has escaped notice by the writers. May I, while cordially thanking your reviewer for his kindly notice of our book, point out that Chapter XXXIV., p. 795, contains a brief account of this subject though it has been omitted from the index.

I am, Sirs, yours faithfully,

Westbrook, Bowdon, Cheshire, Feb. 27th, 1906. G. A. WRIGHT.

THE VALUE OF SANATORIUMS AND THE ORGANISED TREATMENT OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—Sir William Broadbent concluded his interesting memorial to the Metropolitan Asylums Board on the question of pulmonary tuberculosis with a brief statement of certain views current about the value of sanatoriums in the treatment and prevention of that disease. The very important series of papers on this subject, which appeared in THE LANCET of Jan. 6th, must have brought home to all who read them the conviction that sanatoriums have disappointed many of the hopes which at first were entertained concerning them by large sections of the public, among whom there has even, perhaps, been too considerable a reaction. It seems certain that a large proportion of cases in an early stage of pulmonary tuberculosis, but unhindered by special constitutional weakness or complications will admit of cure in sanatoriums if they will submit to the necessary discipline and persevere for the necessary time; but the fulfilment of these conditions is only possible in a limited number of instances and is practically impossible for the enormous majority of the poor. The phthisical poor often derive great temporary benefit from hospital treatment, but as soon as they return to their former domestic conditions they rapidly fall back into their former state.

It is doubtful whether the supposed diminution of infection arising from precautions with regard to sputa can at present be said to take rank as a scientific truth. The suggestion was first strongly pressed in connexion with Professor Koch's denial of the identity of bovine with human tuberculosis. That denial, and the doubt thrown by it upon the dangers to the human subject arising from diseased animals, was the immediate occasion of the Royal Commission under Sir Michael Foster, which, in an interim report, speedily furnished evidence that Professor Koch had been in error. This Commission has since been continuously engaged in the further investigation of the subject, and especially in endeavours to determine the consequences of the consumption of the milk furnished by tuberculous cows. It is, of course, quite possible that pulmonary tuberculosis may be communicated through the agency of human sputa. As Faraday used to say with regard to any doubtful scientific question, "it may be so," but it cannot be said that any evidence in excess of probability has as yet been furnished in support of the suggestion. In such circumstances it is obviously right to use all practicable precautions, but it is not right to treat as a fact what is at

present only a hypothesis. I fancy that there is some reason to believe that the Commission may yet have to pronounce that bovine tuberculosis is a very serious and ever-present source of danger to mankind, and that our views of the precautions to be enforced in relation to pulmonary tuberculosis may yet be greatly modified in consequence of its conclusions. It has even been suggested, by clinical observers of great skill, that bovine tuberculosis, communicated in milk at an early age, may remain latent for years in some unsuspected nidus, and may undergo rapid development either at puberty or at some subsequent period of life. The frequent discovery of small deposits in the lungs or other organs of deceased persons who had manifested no suspicious symptoms during life, must be admitted to afford some support to such a suggestion, and to be in complete harmony with the brilliant generalisation concerning pulmonary tuberculosis, that it was "an infectious fever with a long period of incubation," which was uttered by William Budd 40 years ago, at a time when bacilli were unthought of and when the absolutely non-infectious character of the disease was stoutly maintained by the vast majority of practitioners.

I am, Sirs, yours faithfully,

Feb. 26th, 1906. A VETERAN.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Proposed Labour Colony for Birmingham.

AT the last meeting of the general purposes subcommittee of the Birmingham distress committee the report of a deputation which visited the labour colony at Hollesley Bay, near Ipswich, was received. The deputation reported favourably and expressed the belief that a similar colony promoted by Birmingham would afford a means of dealing with the unemployed without deteriorating or pauperising the men. They recommended that an inquiry should be made as to suitable estates for the purpose within a reasonable distance of Birmingham and as to the success or otherwise of the small holdings at Catshill and elsewhere in the neighbourhood and also as to the previous employment, training, and age of the men now occupying these holdings. The recommendations were unanimously approved.

New Fever Hospital at Bilston.

A new fever hospital has been opened at Bilston; it consists of two main wards for 14 and 10 beds respectively, an observation ward, a medical attendants' room, nurses' sitting rooms and bedrooms, a kitchen, a pantry, a laundry, and a mortuary. It is intended to erect a disinfector. The total cost of the hospital and buildings will amount to about £2600 or £108 per bed, exclusive of the payment for the land.

Feb. 27th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Northern Hospital.

THE Northern Hospital for Women and Children, formerly known as the Clinical Hospital, like so many of our charitable and philanthropic institutions, is short of money. Its work increases year by year, while the annual subscribers become fewer, partly from death vacancies not being filled up but principally from so many who were supporters leaving the neighbourhood. Seeing that the benefits of the hospital are not limited to Manchester and Salford but are shared by many populous districts round about, where the aggregate wealth is very considerable, this is not a creditable state of things. For the past five years the average deficiency of income to meet expenditure has been about £900 per annum. At the end of the year the hospital was in debt £4000. To wipe off this debt and to enable the hospital to continue its work on the present scale an appeal is made for £25,000, which it is hoped would be raised by a bazaar and, as the hospital is entering on its jubilee year, by a jubilee fund. So far £6000 have been raised and the friends of the hospital hope for a generous response to their appeal. Probably the money will be obtained, but it is an unsatisfactory state of things. Our charities are almost all of them living beyond their income. They cry, "Give, give," and people give, more or less, but never enough to stop the cry. And whatever is given it is never enough to satisfy the crowds of patients, some of whom ought not to sponge on charity. Is our system of medical relief all wrong? The idea of independence and self help seems lost among large sections of the population, many among them scarcely the proper recipients of charity. The trend of present-day dealing with these and kindred questions seems leading to a general pauperising of the people and lends countenance to the opinion of many that we are a decadent race. It is no doubt a most difficult problem so to give help as not to do injury and its solution has not yet been discovered.

Dust-laying Experiment.

The dust of our roads is so great a nuisance and so abominable, both hygienically and æsthetically, that all efforts to get rid of it are eagerly welcomed. Dr. T. A. Rothwell, the medical officer of health of Hale, an increasing suburb of Altrincham, states in his report that during last summer an experiment was made locally with regard to dust prevention on the road over which the traffic is greatest. A thin layer of hot liquid tar was distributed over the surface and on this a mixture of sand and lime was scattered. Much benefit resulted "and even to-day the surface of the road is drier and cleaner than that of the adjoining roads." It would be well worth while to give this method a more extended trial.

St. Helens and Consumption.

At a recent meeting of the St. Helens health committee there was a discussion on a memorial from the National Association for the Prevention of Consumption urging the adoption of more effective measures against the disease. The medical officer of health, Dr. J. J. Buchan, stated that while in the last 25 years consumption had decreased in the country as a whole by one-half, "in St. Helens they were just where they were," though "25 years ago they were better than England and Wales." He pointed out that what was needed was compulsory notification and means for the isolation of cases. One of the members mentioned a difficulty found at the workhouse where there was a ward for consumptives—viz., that as soon as the patients felt a little better they went out and came back worse than ever. It was decided to obtain more information for the purpose of an adjourned discussion.

Life Insurance of Paupers.

The practice of insuring the lives of infants for the sake of the burial money is pretty generally considered rather a sinister proceeding, and there is good reason to think that it does not conduce to the welfare of the child. On the other hand, the diminution of infant mortality brought about by Mr. Broadbent's well-meant experiment at Huddersfield, where a 12 months old baby is worth a sovereign, shows how the maternal instinct may be influenced by monetary considerations. There is, however, another phase of life insurance illustrated by a recent occurrence showing that this species of gambling has ramifications that all may not be aware of. A person from the Haslingden union workhouse died at the Prestwich asylum. The relatives were communicated with and one of them, acting as ambassador, went to the asylum and said he was sorry "they were unable to inter the body." So the burial was carried out by the asylum authorities at the cost of the Haslingden union. And yet the clerk to the asylum has learned that "no fewer than seven certificates of death have been taken out at the office of the Prestwich registrar to prove claims for insurances effected upon the deceased's life." This is by no means a solitary incident. One of the guardians at their meeting said that "it was scandalous that people should insure a person for anything up to £1000 and refuse to inter," but the clerk stated that it was only one of many such cases. It was agreed that when the guardians are asked to make suggestions for the information of the Royal Commission on the Poor-law they should urge such an alteration of the law as would enable guardians to compel people "to discharge their responsibilities when they manifestly can do," which appears to be a perfectly reasonable object.

Henshaw's Blind Asylum.

It is proposed to build a new school for the blind children of Henshaw's Asylum and it will no doubt be a great

advantage to have them removed from the present building and the adult patients. Negotiations have been opened for the purchase of a site in Trafford Park and are only waiting for the approval of the Board of Education and the Charity Commissioners. This provision has been urged on the board for a long time, but the financial difficulty has caused delay. It is calculated that the land, the buildings, and their equipment will require an outlay of from £20,000 to £25,000.

Northern Sanatorium for Children.

The forty-fifth annual meeting of the governors of the North of England Sanatorium for Children was held on Feb. 23rd. In 1904 939 children were treated and in 1905 the number had increased to 962, out of which number there was only one death. The children come from about 60 northern towns, among which Bolton with 155, Manchester with 223, Bradford with 61, and Liverpool with 57 cases are the recipients of the benefits of the institution. The governors of the Cotton Districts Convalescent Fund sent 245 children. An unusual circumstance in the case of charitable institutions is that the year closed with a small credit balance.

The Provident Dispensaries.

Some years ago the question of the provident dispensaries called forth strong differences of opinion, sometimes warmly expressed. Now the fire seems almost burnt out or is perhaps only smouldering. However that may be the annual general meeting of the association passed off very quietly. Some of the original members were present but the attendance was small. The number of paying members on the books was 16,352 and the number the previous year was 16,324. The receipts from the various dispensaries amounted to £3482 and the payment to the medical staff was £1945. The previous year the receipts were £3794 and the medical staff had £2165 distributed among them. The position of the association is, as the chairman said, practically stationary. "He regretted it did not attract more members of the class for which it was intended," and appealed for young and energetic men to help on the work, but it is a cause that never aroused much enthusiasm, though the idea underlying it was attractive—i.e., to help those who wished to help themselves but could not manage it fully. On the other hand, the medical profession looked askance at the methods sometimes adopted for obtaining members and at the social status of some of them, while they had a feeling that there was something of servitude (though some might consider that epithet open to the reproach of being a "terminological inexactitude") in the position assigned to them.

Small-pox at Oldham.

Oldham bids fair to earn an unenviable notoriety as to small-pox. It was reported on Feb. 15th that 12 cases were notified the previous week; on the 13th seven more were notified, and on the 14th four persons were taken to the isolation hospital, while on the 18th ten more cases were reported by the Oldham sanitary authority. It seems almost time that this loathsome and preventable disease should be removed from our midst.

Feb. 27th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The University of Leeds.

THE War Office has announced to the University of Leeds that it will accept a first class in the final examination of any honours school in the faculties of arts and science in the University, entitling a candidate to a commission, if nominated, as counting one year of seniority on obtaining his commission. The Army Council will also accept the examination for the degree of B.A. or M.A. or the intermediate examination in arts and science as exempting a Militia or Imperial Yeomanry officer from the necessity of obtaining a "leaving" or "qualifying" certificate before admission to a competitive examination for a commission in the regular Army.

The Mayor of Huddersfield's Experiment.

It will be remembered that some time ago the Mayor of Huddersfield, impressed by the high infantile mortality within the borough and with the idea of developing an intelligent interest in the matter of the rearing of children, promised a sum of £1 to the parents of every child born within a certain area on the latter attaining the age of 12 months. It appears that 25 of the infants have now reached the first anniversary of their birth and Alderman Broadbent, who is a brother of Sir William H. Broadbent, after seeing all the children, who, with the exception of one, were in robust health, has fulfilled his part of the contract. There can be no doubt that Mr. Broadbent's public-spirited action has developed in Huddersfield as elsewhere an intelligent desire to understand more fully the conditions which are inimical to the health of infants and it cannot fail to be far reaching and beneficial in its influence.

The Proposed Conference on Infantile Mortality.

Mainly on the initiative of Bailie Anderson of Glasgow and Alderman Broadbent, mayor of Huddersfield, both of whom take a great interest in the subject, a preliminary gathering of medical officers of health and of other persons interested in the question of infantile mortality was held in Leeds on Feb. 23rd. The meeting, which was large, representative, and enthusiastic, was presided over by the Lord Mayor of Leeds. Representatives were present from the London County Council, from Edinburgh, Glasgow, Liverpool, Leeds, Newcastle, Huddersfield, the West Riding of Yorkshire, Birmingham, Stafford, Lancaster, Bradford, Halifax, Oldham, St. Helens, Southport, Wakefield, Birkenhead, and Greenock. The chief object of the meeting was to determine the advisability of holding a national conference on the subject of infantile mortality in London during the coming summer. In support of a motion to that effect Alderman Broadbent pointed out that if the mortality of infants could be reduced to 75 per 1000 the death-rate would be reduced by one-half and this figure should be aimed at. A conference such as was suggested would concentrate public opinion on the question and in this way an immense amount of good would be done and the remedy would be begun. In a letter which he had recently received from Mr. Rider Haggard, the latter said that anything which would save the lives of our children would be found of enormous advantage in years to come when the nation would need all the vital force it could command. Bailie Anderson contrasted the death-rate of infants in England and Wales, Scotland, and Ireland, the figures being 152, 127, and 104 per 1000 respectively. The rates in Norway and Sweden were 94 and 99 and New Zealand's rate was only 82. The terribly high death-rates in this country implied that owing to a lack of knowledge and of care many of the survivors were permanently weak and herein lay the root of the physical deterioration of our people. It was ultimately resolved to hold a conference in London some time after the middle of June and that membership should be open to medical officers, to municipal bodies, and to others interested in the matter. The following subjects were suggested for discussion: (*a*) the appointment of qualified women inspectors, with special reference to the hygiene and feeding of infants; (*b*) the institution of depôts for the supply of pure or specially modified milk for the feeding of infants; (*c*) the utility of infants' foodstuffs; (*d*) the regulations concerning the placing of infants out to nurse and the amendment of the Infant Life Protection Act; (*e*) the increase of the power of local authorities in regard to the control of foodstuffs and particularly in regard to milk-supply; (*f*) the employment of women before and after confinement; (*g*) an alteration in the law to provide for the earlier registration or notification of births; (*h*) the compulsory notification of stillbirths; (*i*) the influence of general sanitary conditions in relation to infant mortality; (*j*) the teaching of the hygiene of infancy and nursing in schools; (*k*) the insurance of infant life; (*l*) the influence of alcoholism on infant mortality; (*m*) the relation of premature births to infant mortality; and (*n*) the extension of the Midwives Act to Scotland. Alderman Broadbent and Bailie Anderson will act as honorary secretaries of the council of organisation, which will be representative of the whole kingdom, and Dr. A. K. Chalmers of Glasgow and Dr. S. G. Moore of Huddersfield will act as honorary treasurers. The first meeting of the executive committee will be held at Huddersfield on March 9th.

Annual Report of the Medical Officer of Health.

The estimated population of Leeds, according to the figures of the Registrar-General, is 456,787. The number of births during 1905 was 12,337, a birth-rate of 27·1 per 1000. The average birth-rate for the previous ten years was 30·5. The number of deaths was for all ages 7124, giving a death-rate of 15·6 per 1000, as contrasted with a death-rate of 19·0

for the average of the previous ten years. Excluding the deaths of non-municipal paupers, but including those of Leeds persons dying in the fever hospitals and in the Hunslet workhouse, which lie beyond the boundary of the borough, the death-rate is 15·26 per 1000, and this year, therefore, Leeds has the lowest death-rate of the nine largest towns in the kingdom. The deaths under one year were 1875, giving a ratio of 152 per 1000 births in the same period. The average infantile death-rate for the preceding 15 years was 176, calculated on the same basis. The number of cases of small-pox notified was 129 and there were three deaths; of scarlet fever 935 cases, with 39 deaths; and of diphtheria and membranous croup 372 cases, with 44 deaths. There was one fatal case of typhus fever, 292 cases of typhoid fever, with 52 deaths, while the deaths from measles amounted to 109. The deaths from pulmonary tuberculosis were 556. It is interesting to note that 556 cases of this disease, notification of which is voluntary, had been notified during the 12 months of 1905.

The Leeds Workpeople's Hospital Fund.

The annual meeting of the supporters of this fund was held on Feb. 21st when the eighteenth annual report was adopted. The main source of income is the voluntary contribution of the sum of 1*d.* per week for men and ½*d.* per week for females and boys by the workpeople throughout the city. In many instances the workers authorise the deduction of the necessary amount from their wages; in other cases the sums are collected for the fund by one of themselves. The amount coming to the fund in this way amounted last year to the sum of £8109. From other sources, such as public-house collections, Sunday concerts, football matches, galas, and club collections, smaller sums are obtained, and the total income for 1905 amounted to £11,115. The balance in favour of the fund at the end of 1904 was about £2100. The money thus collected is utilised in various ways. Some is allotted to the maintenance of the two convalescent homes, institutions which are the property of the fund and have been purchased out of a sinking fund started some years ago. In working expenses, in the maintenance of the convalescent homes, and in providing a sum for the enlargement of one of the homes a sum of about £6000 is devoted this year and the remaining £7205 have been allotted in the following manner: Leeds General Infirmary, £5000; Leeds Public Dispensary, £750; Leeds Hospital for Women and Children, £750; Leeds Tuberculosis Association, £280; Leeds District Nursing Association, £225; Bramley Nursing Association, £50; Stanningley Nursing Association, £50; and Leeds New Maternity Home, £100.

Feb. 27th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Death from Opium Poisoning.

AN inquest has just been held in the mining village of Haswell in the county of Durham on a miner who had been poisoned by laudanum administered to him in beer. He had been in the habit of getting drunk about every fortnight and at such times he became quarrelsome and seems to have often fought with and ill-treated his wife. On the evening preceding his death the deceased had been drinking beer with his son and in order to prevent him from leaving the house the latter sent for more beer which was consumed between the deceased, his wife, and son. About 10 P.M., when the son left the house, his father was singing and had no appearance of drowsiness but soon after sleep overtook him and his son lifted him into bed. About 2.30 A.M. on the following morning the father was found to be insensible and breathing heavily and soon afterwards expired. The wife confessed that she had put two-pennyworth of laudanum in the beer drunk by her husband with no intent to kill but in order to restrain his tendency to quarrel and to ill-use her. A chemist and druggist recognised the bottle in which the poison had been procured at his shop but he could not remember who bought it, as he had supplied several persons that night with laudanum in pennyworths and two-pennyworths—equal to half an ounce of the tincture. Dr. R. R. Pirrie deposed that the death was the result of opium poisoning. The jury returned a verdict of wilful murder against the wife who was accordingly committed for trial.

Deaths of Children from Burning.

In the large towns of Northumberland and Durham no kind of accidental deaths among children are so common as those caused by the ignition of flannelette clothing and unguarded grates. Over and over again the coroners warn careless parents and direct their juries to add incriminating riders to their verdicts but the fatalities seem none the less frequent. In a case that recently came before Mr. Hoyle the wife of a labourer left her three-year-old daughter in charge of a child 12 months old clothed in flannelette and in a room without a proper fireguard. On her return she found the house full of smoke, all the clothes having been burnt off the younger child. The coroner decided to bring the case under the notice of the police and to forward a copy of the depositions to the Home Secretary.

Presentation to Dr. George Haliburton Hume.

The annual dinner of the past and present students of the Durham University College of Medicine, Newcastle-upon-Tyne, was chosen as the most fitting opportunity for the making of a presentation to Dr. G. H. Hume. The dinner was held on Feb. 16th, with Mr. G. Walter Ridley in the chair, supported by Dr. Hume and Sir George Hare Philipson, and after the loyal toasts had been honoured and Sir G. H. Philipson had responded to the toast of "Our *Alma Mater*," proposed by Dr. Charles Gibson, Dr. W. C. Beatley proposed the health of Dr. Hume. He said that he yielded to none in the sincerity of his regard for Dr. Hume whose personal friendship he had enjoyed for many years and to whom he was indebted for many acts of kindness. Dr. Hume was elected an assistant surgeon at the Royal Infirmary, Newcastle-upon-Tyne, in 1869 and full surgeon in 1878. He soon made his influence felt and gained the reputation of being a successful surgeon and a brilliant clinical teacher. He had taken an important part in helping to make the infirmary one of the best schools of clinical surgery in the kingdom. The deep interest which he took in the new infirmary was known to all those present, but there were few of them who realised the large amount of his valuable time and thought which he had devoted to it. They trusted he might long be spared to continue his good work. In handing over the presents Dr. Beatley said that they were a token of their esteem and regard and of their appreciation of the valuable services which Dr. Hume had rendered to the medical profession and to the Royal Infirmary. Dr. Hume, in responding, said that the beautiful gifts which he accepted with the warmest feeling of gratitude would afford pleasure not only to himself but to those in whose happiness and gratification he had, of course, the closest interest. They would become heirlooms and would serve as an example and an incentive as long as there were those who bore his name. A day such as that, he said, could only occur once in a man's lifetime. The gifts consisted of a silver tray and tea and coffee service, together with a copy of Bacon's Essays, which contained the signatures of all who had subscribed to the testimonial. The tray bore the motto, "True to the end," and the inscription, "This tray and a service of plate was presented by many of his friends to George Haliburton Hume, Esq., M.D., D.C.L., F.R.C.S. (Ed.), for 36 years Honorary Surgeon to the Royal Infirmary, Newcastle-upon-Tyne, on the occasion of his retirement, Feb. 16th, 1906."

Death of Mr. Smart Atkinson Fothergill.

Mr. Smart Atkinson Fothergill, a well-known medical practitioner of Haswell, Sunderland, died at his residence on Jan. 30th, in his sixty-eighth year, after an illness of about a fortnight's duration. He leaves a widow and grown-up family. Mr. Fothergill was a student at the Durham University College of Medicine in the days of the old Orchard-street School and took the diploma of M.R.C.S. Eng. in 1861 and ten years later that of L.R.C.P. Edin. He was formerly surgeon to the Haswell, Shotton, and Easington Coal and Coke Company and was also surgeon to the Tuthill Limestone Company. Besides these offices he held several public appointments and was a member of the Northumberland and Durham Medical Society.

Feb. 26th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

THE inhabitants of Cardiff and the immediate neighbourhood appear at last to realise that they have responsibilities in connexion with the Cardiff Infirmary. The sixty-ninth

annual report which the board of management presented to the annual meeting of governors, which was held on Feb. 28th, is a very satisfactory document. The board is able to state that for the first time in the history of the institution the whole number of beds (173) have been available for patients. In 1904 there were treated as in-patients 2144 persons and this number was increased in 1905 to 2301, including 1198 surgical, 371 medical, 456 ophthalmic, and 276 gynæcological cases. There has also been an increase in the number of out-patients treated, the number in 1904 being 19,525, while in 1905 it was 20,850. Each in-patient stayed in the infirmary on an average 25 days and the average cost of each occupied bed was £64 5*s.* 4*d.* or 12*s.* 2*d.* below the average cost in 1904. The subscriptions of the workpeople amounted to £2362 and the general annual subscriptions amounted to about £100 more than this sum. Compared with towns of the same size the number of persons who subscribe regularly to the Cardiff Infirmary is small.

Cardiff Port Sanitary Authority.

The Cardiff port sanitary authority is well prepared to deal with any cases of infectious disease of however virulent a character which may occur among the passengers or crew of vessels arriving at the port. On Flat Holme island, which is situated in the middle of the Bristol Channel, there is an isolation hospital with accommodation for 16 patients, to which persons suffering from cholera, plague, or yellow fever are removed. Connected with this hospital is a crematorium which is also used by the port sanitary authorities of Bristol, Bridgewater, Newport, and Barry. Patients are also sent by the two last-named authorities to the hospital. Other cases of infectious disease arriving at the port of Cardiff are taken to the city fever hospital. In his annual report the medical officer of health (Dr. Edward Walford) states that one case of small-pox, one case of measles, and four cases of typhoid fever were brought into the port during 1905 but that there were no cases or suspected cases of cholera, yellow fever, or plague. Not the least useful sanitary equipment of Cardiff is the public health laboratory, of which considerable use is made by the port sanitary authority. Upon several occasions the assistance of this department in connexion with suspected cases of plague has been invaluable. During 1905 the water from 66 vessels was examined at the laboratory and of this number 42 samples were reported to be impure, 18 were fair, and only six were reported good. The six sanitary inspectors visited 8116 vessels during the year and defects were found in 15 per cent., though, as might be expected owing to the more frequent inspections, there were fewer defects in the coastwise ships than in those proceeding to and from foreign countries.

Royal Devon and Exeter Hospital.

The 165th annual meeting of the governors of this institution was held on Feb. 22nd. The medical report stated that 1448 in-patients had been admitted, compared with 1420 in 1904. The out-patients numbered 5650, as against 5568 in the previous year. The income for the year amounted to £8245; the expenditure was £9545. During the year 178 patients were sent to the Ockenden Convalescent Home, Torquay, in connexion with the hospital. At the meeting some comment was made on the fact that of £756 received from congregational collections during 1905, only the sum of £29 was from Nonconformist bodies, and it was decided to send a circular to them on the subject.

Tomb of a Centenarian.

An altar tomb in Brislington Church, near Bristol, has the following inscription: "Sacred to the memory of Thomas Newman, aged 153." Another part of the inscription mentions that the stone was refaced in 1771 in memory of the great age of the deceased. The figures at the head of the stone are "1542," probably the date of death. From the style of the tomb it would appear that the deceased was a person of some position.

A Golden Wedding.

Mr. David Thompson of Launceston, Cornwall, and Mrs. Thompson celebrated their golden wedding on Feb. 7th. Mr. Thompson, who was admitted a Licentiate of the Royal College of Surgeons of Edinburgh in 1854, recently retired from active work after 50 years' practice of his profession at Launceston. He has been a member of the town council, mayor of the town, and Brigade-Surgeon-Lieutenant-Colonel of the Cornish Volunteers. He is a county magistrate and still takes an active part in all town affairs.

Feb. 28th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The University of Edinburgh and the "New School."

THE University of Edinburgh has made a new departure which is worth recording as it may lead ultimately to developments which might have an important influence on the Edinburgh Medical School. Owing to the appointment to a chair of Anatomy in Australia Dr. R. J. A. Berry's post and rooms at the New School became vacant. The "New School" is one of the clusters of lecture rooms and practical class rooms which form the extra-mural part of the Edinburgh Medical School. In the ordinary course of affairs one of the junior anatomists would have succeeded Dr. Berry in the lectureship and in the dissecting rooms and would have been a rival of the University anatomical department. It is this friendly rivalry that has developed Edinburgh teaching to the high pitch which it has undoubtedly attained and in this respect it has been most beneficial. Instead of Dr. Berry having been succeeded in the usual way the University has taken over the dissecting rooms, thus becoming the tenant of the trustees of the New School. Three demonstrators are to have charge of the rooms, under the superintendence, presumably, of the professor of anatomy, and students are to have the option of dissecting there or in the rooms inside the University. No systematic lectures on anatomy will be delivered at the New School, so the University is relieved of so much competition. The extra-mural school loses the personal energy and initiative of an independent lecturer.

Crèches in Edinburgh.

The Edinburgh Day Nurseries Association, which began in a very humble way, has now four nurseries in the city. They are used by women who have to go out to work to earn a livelihood, and the confidence of the mothers that their children will be properly fed and cared for is shown by the number of children admitted to them during the year. The number of children was 475 and the total attendances numbered 15,592. The crèches are in Canongate, Fountainbridge, Stockbridge, and Causewayside, four of the poorest localities in the city. As people are becoming alive to such questions as arrest of growth of population, infant mortality, and physical deterioration, these nurseries ought to have no difficulty in getting sufficient money for their support, and yet, from the annual report of the association, it appears that subscriptions for the year amounted to £308, while the expenses amounted to £502, less £197 which were received for board from the parents or guardians of the children. The association is already £400 in debt, which is not creditable to the philanthropic people of Edinburgh.

Dr. James Watson Lectures.

As far back as 1856 a fund was formed and placed under the control of the Faculty of Physicians and Surgeons of Glasgow to be used in some suitable manner to commemorate Dr. James Watson, an ex-President of the Faculty and a much respected practitioner in Glasgow. The money accruing from the fund was at first applied by the Faculty as a prize for work done by Licentiates and later it was offered for competition to students under the auspices of the Faculty. This year the council of the Faculty has made a new departure in using the fund to enable it to get an outstanding medical man to deliver a couple of lectures to the members of the profession. As a result of this arrangement Sir Hector C. Cameron, last week in the Faculty Hall, delivered two lectures on the Evolution of Wound Treatment during the last Forty Years, a subject on which he is well qualified to speak owing to his own long and varied experience and also to his association with Lord Lister in his monumental work in the Royal Infirmary of Glasgow. After outlining the development of Lister's work Sir Hector Cameron referred to the reaction which began about 20 years ago against the use of chemical antiseptics and in favour, so far as possible, of the sterilisation by heat of everything used in wound treatment. It was, in his opinion, to be regretted that this form of treatment which involved no new principle but only a change of procedure should have received a distinguishing name and should be spoken of as if represented by a different school of thought and practice. Every treatment which was directed against sepsis, no matter what the means employed, was surely an antiseptic treatment. In connexion with this he pointed out that Lister was himself the first to use a dressing sterilised by

heat. The lectures, which were extremely interesting, concluded with a description of the present-day treatment of wounds in so far as it concerned compound fractures, psoas abscess, and acute abscess.

Stirling Royal Infirmary: Extraordinary Action of the Directors.

The annual report of the Stirling Royal Infirmary has just been issued. It shows that during the year covered by the report there were 330 in-patients and 2063 out-patients were treated in the dispensary, while the number of dressings performed in the out-patient department was 5549. The income for the year, including a balance of £115 from the previous year, amounted to £1621, while the expenditure amounted to £1562, thus leaving a small balance to the credit side. The report intimates the completion of the Victoria Convalescent Home which has been built for the reception of patients from the infirmary. It has accommodation for 16 convalescents. In the report reference is also made to the resignation of four out of six of the visiting medical officers. I have made inquiries into the matter and find that the facts are as follows. A sick woman was admitted into a side-ward by the matron without the fact being intimated to the visiting medical man in charge at the time, the sick woman was attended by a member of the staff not on duty at the time, and a surgeon was brought out from Edinburgh to operate—all without the knowledge of the medical man responsible at the time for the patients in the infirmary. This action on the part of the matron seems to have brought matters to a crisis as regarded her, for four of the visiting medical officers intimated their resignation unless her services were dispensed with. Preceding this extraordinary action there seems to have been much annoyance caused to the medical officers in a number of ways until the position became intolerable. Following upon the letter referred to a committee of the directors met the four members of the staff and after hearing their complaints desired them to put them in writing. This they, probably unwisely, did, for the directors sent the written complaints to the matron, so that she might defend herself and answer them. The matron's defence covered pages of type-written paper and was on the face of it drawn up by an expert at drawing defences. The medical men were then requested at a few hours' notice to meet the directors and the matron, an invitation which they wisely declined in the circumstances. Their resignations were accepted. No other medical men in Stirling would join the staff, so in their extremity the directors appointed a retired army medical man, who had recently come to the town, and the assistant of a neighbouring practitioner. There is no doubt that the directors were extraordinarily ill-advised in this matter. They ought to have realised that friction between the matron and the medical staff of a small hospital is intolerable and that when it exists the matron ought to go; her sphere is elsewhere. Instead of this they hand on to her what could only be regarded as a confidential communication from the honorary staff and expect the staff to appear as prosecutors before a full board meeting. Anything more preposterous could hardly be suggested. Men who were giving their time and their skill to a public charity to be impeded in their work by a matron or a nurse, and when they make representations to that effect to be called upon to act as public prosecutors and to defend and substantiate their position, is grotesque in the extreme. This is another example of how a lay board fails to grasp the essential point in a matter of this kind. Had they realised that friction between the nursing staff and the medical staff is injurious to the institution and to the patients, and that the only proper solution is to have a nursing staff that knows its proper place and keeps it and is obedient and loyal, this trouble would not have arisen. The judges of obedience and loyalty are the medical officers, not the matron or nurses. The two medical men who were induced to join the staff can hardly have realised the true position of affairs or they would not have helped the board out of the dilemma in which it had put itself. The medical man who had charge of the patient in the side-room seems to have failed to recognise the official relations of things and the courtesy due to colleagues. It is to be hoped that the board of this useful little hospital may yet see the matter here referred to in its proper light and will have the courage to rectify the blunder it has made.

Sir Frederick Treves on the Bases of Success.

In his rectorial address at the University of Aberdeen on Feb. 22nd Sir Frederick Treves dealt with the Bases of Success as illustrated in the life of a medical man. The fascination of medicine was intelligible for he thought there were more heroic men in the medical profession than in any other. The heroism might not be dramatic or thrilling but was based on self-sacrifice. The true spirit of the profession of medicine was not to be illustrated by the brilliant surgeon or the learned teacher but by the man in the humbler walks of the profession. Research added another glamour of romance to modern science, as shown by Laennec's discovery in connexion with tubercle and the tracking down of the miscreant malaria. Money, influence, social position, good fortune, and genius were not factors necessary for success. Even moderate means at the outset of a career hindered independent progress. That unearned money counted for nothing in the struggle to excel was graphically illustrated by the life of Sir James Paget. No influence in the world would make a worthless man worthy or an incompetent man capable. He commended the words of Hans Andersen: "To be born in a duck's nest in a farmyard is of no consequence to a bird, if it is hatched from a swan's egg." Luck meant merely that the man to whom it came was ready for an opportunity when it presented itself. Like opportunities might happen to many but such only were called fortunate as fell in the path of the ready man. Again, the genius, if quick in perception, was uncertain in action. Genius, in its crude and native state, was not wanted in medicine nor was it a marked attribute of the most eminent medical men. The marvellous achievements of Harvey, Hunter, and Lister were but the product of slow, dogged, persistent work—if they had genius it was in the form of that "sovereign capacity for patience" which Buffon held in such esteem, or else the sterling quality grew upon them in the manner described by Lytton when he maintained that "every man who observes vigilantly and resolves steadfastly grows into a genius." The synthetically composed genius was better, safer, and more trustworthy than the congenital genius, as it entailed genius for hard work, patient observation and experiment, and persistent reasoning. The real factors in success were health, serviceable knowledge, sympathy, and honesty, industry being pre-supposed. On health depended the capacity for endurance and the quality of work done. A highly cultivated particular knowledge was a mighty possession as well as the surest means of securing the world's confidence but had to be supplemented by an intimate acquaintance with mankind. The successful physician was a finished student of men, an augur, a reader of signs. Again, sympathy counted for much but was more than a mere profession of kindness. The physician who could conceive of a disease not only as his art should show it him but as it appeared to his patient had grasped the foundation of therapeutics. Such a two-fold vision would accredit him not only with gentleness and consideration but also with tact and insight. If the bald truth were always uttered the gentle fabric of social life would crumble to the ground in a day. What we termed pleasant, or even good, manners was largely concerned with a discreet dallying with the truth. Finally, there was no possibility of sure success without honesty. Into the hands of the physician was placed a candid and unquestioning trust, into his ears were poured solemn as well as sordid secrets, while in the revelation of men's lives there was no confessional which could claim the pitiable candour of the doctor's room. No professional career was more full of minor difficulties, of minor temptations, and of small pitfalls than was the career of medicine, and in the handling of these there was but one line of conduct open to whosoever would do well. In business relations, too, honesty was the only policy. The dangerous axiom that "nothing succeeds like success" was no article of faith in the true *religio medici*. Success in this particular career could never be gauged, and had, indeed, never been measured, by the mere acquiring of wealth. Those who had made the profession of medicine great had made no pretence that riches were among their gains. If that were reckoned as a loss at least the consolation endured that by the earning of gratitude the humblest practitioner could claim to be among the few who ever laid hold of that wealth which was—in a peculiar sense—"beyond the dreams of avarice."

Aberdeen Royal Infirmary.

Colonel Allardyce, chairman of the infirmary board of directors, has issued a circular drawing attention to the necessity for increased accommodation in the following departments more particularly:—

Surgical Department.—The accommodation in the surgical wards is quite inadequate. Large numbers are constantly waiting for admission

and as emergency cases can never be refused it is extremely difficult to meet the demands.

Out-patient Department.—This department is entirely insufficient to meet the requirements of the greatly increased numbers who apply for aid. In 1904 the out-patients treated at the infirmary numbered 12,715. In 1905 they numbered 14,435.

Casualty Department.—The casualty cases are received in one room. When several come together, as often happens, the accommodation is quite inadequate and unsuitable. The department requires to be much extended and there should be added to it recovery rooms, where patients who have been treated may rest for a time before leaving the hospital.

Accommodation for Consumptives.—Consumptive patients at present are admitted into the medical wards and it is desirable that separate accommodation should be provided for them.

Electrical Department.—This is a department which has sprung into existence since the extensions were completed and has grown with great rapidity. At present it is located in the basement floor of the surgical block, where the accommodation is most insufficient. Some days as many as 50 out-patients apply for electrical treatment. Skiagrams are being constantly taken and altogether the work is considerably hampered by the lack of room.

Skin Diseases.—There is an officer for this department, but he has no separate accommodation for his work.

Diseases of the Nose, Ear, and Throat.—The importance of having a special department for diseases of the nose, ear, and throat is daily becoming more evident. There is, however, no available space.

Dental Department.—There is no separate accommodation for the dentist.

Massage Department.—No accommodation whatever.

Observation of emergency cases.—Separate accommodation for this purpose is urgently wanted. At present only very temporary provision has been made.

Gynæcological Department.—The accommodation is much too small.

Operating Theatres.—One of the most important needs of the hospital is the improvement of the operating theatres to bring them into conformity with modern requirements.

The Nurses' Home.—This is quite insufficient. Extra rooms for nurses are much needed.

House for Medical Superintendent.—It is believed that it would be for the benefit of the institution that a house for the medical superintendent should be erected in the immediate neighbourhood of the hospital.

Death of Mr. William Cromar, M.B., C.M. Aberd., L.R.C.P. & S. Edin., L.F.P.S. Glasg.

The announcement will be received with regret of the death of Dr. William Cromar which occurred somewhat suddenly on Feb. 7th at Wood Green, London. A son of the late Mr. John Cromar, dentist, Aberdeen, Dr. Cromar graduated M.B., C.M. at the University of Aberdeen in 1898, and he was a Licentiate of the Royal Colleges of Physicians and Surgeons of Edinburgh. Dr. Cromar went first to Lincolnshire, but settled down four or five years ago in Wood Green, where he conducted an extensive practice. He was only 36 years of age and death was due to an attack of pneumonia. Dr. Cromar was unmarried.

Feb. 27th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Election of Direct Representative on the General Medical Council.

Sir William Thomson having demanded a recount and scrutiny of the votes this has been done, with the result that the majority for Dr. L. Kidd of Enniskillen, the provincial candidate, has been increased to eight, 909 having voted for him as against 901 for Sir William Thomson.

Belfast Maternity Hospital.

The 112th annual meeting of the supporters of this hospital—one of the oldest charities in Belfast—was held on Feb. 23rd. From the report presented it appears that during 1905, 326 patients were treated in hospital and 306 children were born. Of these 162 were males and 144 were females and 21 were still-born. There were four maternal deaths, one from tuberculosis, one from eclampsia, one from pleurisy, and one from pneumonia. There were 312 extern patients with no maternal deaths. A large number of students from the Belfast and other medical schools attended the practice of the hospital. Dr. W. Calwell referred to the potentialities that lay in the Maternity Hospital as an educational institution and said it would be the duty and the willing pleasure of its supporters to advance the institution along this line.

Newry Fever Hospital.

At the annual meeting of the subscribers held on Feb. 23rd it was reported that since the opening of the hospital in April, 1905, 308 patients had been treated, of whom 162 were intern. The intern improvements cost £502 and there was a balance of £747 from the money raised by the bazaar.

Belfast District Asylum.

At a special meeting of the committee of management of the Belfast Asylum held on Feb. 21st the following motion, after a prolonged discussion, was carried :—

That this committee, seeing the congested condition of the buildings under their charge, are of opinion that steps should now be taken to formulate a scheme for the transfer of the patients to Purdysburn and that a subcommittee of those present be appointed to go into the question and report.

There are 745 people in the Belfast Asylum at Grosvenor-street, where accommodation was only intended for 440, so that there is great overcrowding. There were 53 acres of ground (or 37 acres, leaving out the ground taken by the Royal Victoria Hospital) at the Belfast Asylum, while at Purdysburn they had 437 acres available for the use of a central asylum and 300 patients. The idea is that the patients should all be removed from the Belfast to the Purdysburn Asylum.

County Antrim Infirmary, Lisburn.

Mr. H. M. Barbour, on behalf of the Barbour family, who have been so long associated with the town of Lisburn, has offered to pay the cost of an installation of x ray apparatus for the Lisburn Infirmary so long as this county institution may remain in Lisburn. The apparatus is not to be allowed outside the infirmary but it is to be free to the use inside the hospital of any practitioner, whether on the staff or not, who might have a case where it would be of service.

Belfast Samaritan Hospital.

At the annual meeting of the friends of this institution held on Feb. 26th (the Lord Mayor of Belfast presiding) it was reported that during the year 1905 there had been 159 intern patients, of whom 140 required surgical operation. There were three deaths. During the same period there were 525 extern cases. Dr. J. St.Clair Boyd (to whom a special vote of thanks was passed for his long and valuable services to the hospital) having resigned, Dr. G. A. Hicks (who has been assisting in the hospital for a number of years) has been appointed surgeon in his place. Financially, there is a small debt on the hospital of £84 19*s.* 6*d.*, which is only half the sum due at the end of last year. At the meeting £50 were handed in by the Misses Riddel qualifying them as life governors. The treasurer, in presenting his statement, said that the debt was now less by upwards of £100 than it was at a similar date last year, and that the other items in the balance sheet were equally satisfactory.

Feb. 27th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Action of Phosphorus on the Circulation.

M. Pouchet and M. Chevallier have been making some experiments which show that intraperitoneal injection, in animals, of phosphorus in the proportion of one milligramme per kilogramme of body weight acts as a cardiac tonic. The cardiac energy is considerably augmented, the pulse is slightly slowed, and the blood pressure is somewhat raised. If the amount of the drug be raised to two milligrammes per kilogramme of body weight there occurs first an acceleration of the heart's action but no diminution in its energy, and the blood pressure is slightly raised; next, the action of the heart is somewhat slowed but the amplitude of the contractions is increased and so is the blood pressure. M. Pouchet and M. Chevallier communicated the results of their research to the Therapeutical Society on Feb. 14th.

The Suture of Nerves.

At a meeting of the Surgical Society held on Feb. 7th M. Reynier related a case of compression of the musculo-spiral nerve by a callus of the humerus in which paralysis persisted after the nerve had been freed from the callus. M. Reynier cut down on the nerve a second time and found it surrounded by a fibrous mass. He freed the nerve from this and on the day after both motor power and sensation began to return. In another patient in whom the ulnar nerve had been divided and sutured paralysis persisted. M. Reynier cut down on the nerve a second time and found just the same conditions as in the former case. He freed the nerve with the same result. He thought that these two cases might explain certain failures after suture of nerves. M. Chaput said that Brown-Séquard's theory of "*dynamogénie*," which had been put forward to explain the rapid

return of function in a divided nerve after suture, did not rest on any solid foundation. The return of function in a divided nerve which had not been operated upon could only be explained in two ways. The one was that spontaneous reunion took place and the other was that the paralysis was of a "hysterico-traumatic" nature and that owing to anomalies of distribution or to an abnormally high branching of the nerve trunk, the area apparently supplied by the divided nerve was able rapidly to recover its nervous supply. Clinical facts proved that divided nerves would unite and histological research had shown the manner in which this was accomplished.

Surgery of the Biliary Tract.

At the same meeting of the same society M. Lejars discussed three points in the surgery of the biliary tract. First, he remarked that choledocho-entero-anastomosis was a bad operation, and that in total obstruction of the ductus choledochus it should never be performed except when cholecysto-enterostomy was absolutely impossible. Secondly, an exploratory duodenostomy is an admirable thing to do. M. Lejars mentioned that in the course of a laparotomy for occlusion of the ductus choledochus he had found this canal surrounded by adhesions, but there was no trace of either calculus or new growth. Duodenostomy showed that the ampulla of Vater was perfectly healthy and M. Lejars therefore put down the obstruction as being due entirely to the adhesions. He freed the duct from the adhesions and closed the wound, and the patient recovered perfectly, all the jaundice having disappeared. Finally, drainage of the biliary tract has in the hands of M. Lejars given excellent results in cases of calculous obstruction. He uses the method of operation introduced by Kehr. The ductus choledochus is freely incised, any calculi which may be found in this duct or in the other hepatic ducts are removed, a drain is placed as high as possible in the ductus choledochus, and the wound in the duct is sutured. The gall-bladder and the cystic duct are then removed.

Acute Tetanus following the Use of both Dry and Liquid Antitetanic Serum.

On Feb. 14th, at a meeting of the Surgical Society, M. Reynier read for M. Lop an account of the case of a man who had severely injured his fingers by contact with a revolving disc soiled with dung. An hour after the accident the wounds were cleansed and were powdered with dry antitetanic serum. Three days later the two terminal phalanges of the middle finger were amputated and this wound was also powdered with dry serum. Five days later, although the wounds looked healthy, symptoms of tetanus appeared. Dried serum was again applied and liquid serum was injected, the patient being also given large doses of chloral, but he died within 48 hours. M. Lop wanted to know whether the dried serum could have given rise to the tetanus, as he himself thought that it might have. M. Reynier said that the results of many cases of tetanus made him think that injections of serum were of no use unless they were injected at the time of the accident or at least only a very short time afterwards. M. Tuffier considered that the use of liquid serum could not be considered in the same category with the use of dried serum, for he doubted whether the latter when powdered on to a wound was absorbed. In any case no absorbent dressing should be placed on a wound where the powdered serum was used. As a dressing had been used in the case reported by M. Lop it was most likely that the powdered serum had not been absorbed by the patient.

Gastrostomy in Cancer of the Mouth.

At a meeting of the Anatomical Society held on Feb. 16th M. Morestin drew attention to cases of cancer of the tongue and of the floor of the mouth in which there is marked inability to open the mouth and to take nourishment. In such a case which had come under his care he had performed gastrostomy and had thus been enabled to prolong life for some weeks.

Feb. 26th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

A Case of Leprosy.

AT a clinical meeting held in Zürich on Feb. 20th Professor H. Eichhorst showed a boy, seven years of age, who was suffering from leprosy and has already spent two years in the cantonal hospital. His parents are Swiss but lived in Brazil where the boy must have contracted the disease, which was diagnosed two years ago in its initial cutaneous stage. It was especially remarkable that the palms of the hands and the feet suffered. Notwithstanding prolonged treatment, in which every medicine offering any positive results was tried, the disease has made rapid progress during the last six months, the face being especially disfigured by tuberous growths; nodules also developed in the iris of the left eye—a rare occurrence. As the small-pox hospital is generally empty the boy has been treated there for the last year. Before being transferred to this hospital he was twice vaccinated unsuccessfully with calf lymph diluted with glycerine; a third attempt, in which undiluted lymph was used, was then made with fairly satisfactory success. The bacillus leprae could be detected in the pustules—a unique observation, as Professor Eichhorst remarked.

The Children's Hospital.

This hospital, founded in 1874, has lately been greatly enlarged so that it now offers accommodation to 136 patients. This seems sufficient for a town of 160,000 inhabitants, the more so as there is one other small private children's hospital for the indigent and a children's pavilion is being attached to the cantonal sanatorium for pulmonary cases at Wald. Moreover, a good many cases of diphtheria and scarlet fever are received in the infectious wards of the General Hospital. A sum of £30,000 has been expended on the enlargement of the hospital to the present size. Of this sum £15,200 were contributed by the public, £1200 by the State, and the rest is secured on mortgage. The annual expenditure amounts to about £3000, the daily cost for each patient being 2*s.* 2*d.* The patients contribute about £900 a year towards the expenses, the State contributes £850, and the rest has to be supplied by voluntary contributions. At a clinical meeting held in a newly erected clinic attached to the Children's Hospital Professor Oscar Wyss showed a case of generalised paralysis after diphtheria and a series of severe cases of infantile atrophy, laying stress on dietetic treatment, especially with milk and maltine preparations.

Zürich, Feb. 26th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The War against Malaria.

Dr. Angelo Celli, professor of public hygiene in the Roman School, has just issued another of the carefully compiled studies which come periodically from his pen on themes special to his chair. This time it is on "L'Organizzazione della Guerra alla Malaria," and in the course of half an hour's reading he treats us to a "march past" of the various "contingents," prophylactic and curative, enrolled in the sanitary service of the Roman Campagna. Malaria, the formidable and as yet unsubdued enemy in occupation of that region, is not to be overcome by frontal attacks merely, but by strategic operations of every kind, including the "turning movements" necessary against an antagonist holding strongly entrenched positions. *Unum facere et alterum non omittere* is his watchword, and he congratulates himself on the weapons of precision provided for the campaign by the wise coöperation of the legislature. The first line in his review is formed of the "chinino di Stato" (State-supplied quinine), of which he praises the virtues in a prophylactic sense. Dissenting from Dr. Tommasi Crudell's view that quinine, habitually taken in large undivided doses, is a "veritable poison to the vaso-motor system," he maintains not only that it is quite innocuous but that it acts as a conservative agent, re-invigorating the vital powers and whetting the appetite, while, so far from antagonising it accelerates the curative process in this sense—that to cut short the fever the patient has only to have an increased dose and to prevent "recidività" (relapse) he has only to resume and to repeat the dose daily. In the "Agro Romano," where the State-supplied quinine, prophylactically exhibited, had its maximum development, the results were these: from 1900 onwards, while year by year the number of those prophylactically treated rose to 29,693, the number of first cases diminished from 17 to 1·3 per cent. as treated by the Red Cross; while the cases treated in the Roman hospitals fell from 6186 to less than 3000. Again, while the consumption of State-supplied quinine rose from 2242 kilogrammes for the

first year to 14,071 kilogrammes, in the years 1904-06 the mortality from malaria fell by about one-half and maintained its low level in the latter years of serious epidemics. Notwithstanding the manifest efficacy of quinine, as supplied by the State, in a prophylactic sense, yet better results might be obtained throughout the kingdom were certain obstacles to its administration removed—obstacles due (*inter alia*) to popular ignorance and to the suspicion and the irregular use of the remedy thence arising. Professor Celli therefore recommends: (1) An educative propaganda by means of posters, leaflets, lectures, and *conversazioni* in the popular dialect; (2) a demonstrative propaganda illustrating the efficacy of the State-supplied quinine; (3) a more active and thorough anti-malarial service during the summer and autumn months; (4) a genuine coöperation of agricultural employers in malaria-haunted regions; (5) a steady, systematic, and abundant supply of quinine by the State in periods of epidemic; (6) a provincial organisation of the anti-malarial campaign with provincial anti-malarial delegates and inspectors, temporarily enrolled from the ranks of practitioners specially qualified to combat malaria; (7) and not least important, energetic action on the part of the Government to insure that the recommendations above given are not (as so often occurs in Italy) "more honoured in the breach than in the observance." The remainder of Professor Celli's most interesting paper is devoted to considerations of purely local interest, including suggestions applicable not only to the Agro Romano but to all the malaria-haunted regions of Italy, whether on the mainland or in the islands. A "Programma di Governo" framed on these lines and carried out by the energetic and intelligent coöperation of all proprietors concerned in agricultural industry would go far, in Professor Celli's opinion, and, I may add, in that of other not less ardent hygienic reformers, to bring about Italy's "Risorgimento Sanitario" and to make an "Italia Irredenta ..... dalla Malaria" a thing of the past.

Scarlet Fever in Milan.

I had recently occasion to warn the travelling public of the prevalence of "morbilli infectivi" in Milan. Yesterday's *Secolo* (the most widely circulated, if not the most authoritative, of the Milanese journals) calls attention to the fact that scarlet fever is making its rounds (*girante*) in the Lombard capital and it draws a disquieting picture (evidently from a competent medical pen) of the sequelæ consequent on attacks of the disease. Milan, however, rich and enterprising as she is, has only herself to thank for the recurrence of such "scares." Her water-supply (*inter alia*) leaves much to be desired.

Feb. 24th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Marriage of the Defective Classes.

SEVERAL States have passed stringent laws against the marriage of epileptics and idiots. Much opposition was at first encountered to such legislation and it required years of effort to secure any prohibitory law to such marriages, but at length one State passed an Act and the result was so favourable that others followed the example. A Bill has now been introduced into the legislature of the State of New York by the managers of the Craig (Epileptic) Colony which forbids the marriage of epileptics, idiots, and feeble-minded, and makes it a misdemeanour to aid or to abet such marriage. The measure is endorsed by the leading physicians of the State and will probably become law.

The Nostrum Evil.

The evils of the so-called "patent medicines" are exciting widespread discussion in the medical profession and two prominent lay journals have been carrying on a vigorous campaign against them. The extent to which proprietary medicines are prescribed by the profession is estimated to be 50 per cent. One druggist in New York reports that 70 per cent. of the prescriptions which come to him are for these remedies. A large pharmacy in Chicago reports that 42 per cent. of the prescriptions contain such ingredients and were signed by physicians of high standing. In Boston one drug store reports that of 14,895 prescriptions received in a year 38 per cent. contained proprietary medicines and another had 48 per cent. in 12,000. It is very evident from these figures that the great majority of medical men prescribe these proprietary remedies and are satisfied with the results. It is now the rule that the ordinary practitioner carries in a small satchel all the medicine he requires and that he finds it a great convenience compared with the practice of making prescriptions and sending them to unknown druggists, or carrying bulky drugs and preparing them at the bedside. It is not probable that the physician of this country will go back and adopt the habits of his forefathers in prescribing medicines. The remedy for the nostrum evil is thus stated by the legislative council of the American Medical Association—viz., "All patent or proprietary medicines shall carry an exact formula of their contents plainly printed on each original package and make the contents conform to the formula." The committee proposes that Congress should pass a law excluding from the United States mails all advertising matter which fails to comply with the foregoing conditions.

A National Department of Public Health.

The occurrence of an epidemic of yellow fever in New Orleans and the failure of the local authorities to control it during the last summer, and the final appeal to the National Government for aid, have renewed the demand for an extension of the powers of the Marine Hospital and Public Health Service. The legislative council of the American Medical Association is urging upon Congress the importance of concentrating in the present Public Health Service all of the powers relating to the public now scattered among the departments of the Government and the elevation of that service to the rank and dignity of the other governmental departments with its chief officer entitled to a position in the Cabinet of the President. It is not probable that these recommendations will receive legislative sanction at this session of Congress, but there is little doubt that one or two more visitations of yellow fever will prepare the way for the creation of a National Department of Public Health worthy of the country.

Organisation of a Hospital System for New York City.

The mayor of New York has appointed a commission to report a plan of organising the hospitals of the city—118 in number—under a competent central authority. At present the public hospitals of the Greater City are under the control of three departments, while the ambulance service is directed by the police. The result is that there is no concerted action among the hospitals and the sick are often carried from one hospital to another greatly to their detriment. The appointment of this commission will have an important bearing on the plans of the board of Bellevue and allied hospitals. That board contemplates rebuilding this old hospital on a magnificent scale, the cost of which will exceed the sum of $10,000,000, with accommodation for 3000 patients. In the instructions of the mayor to the commission he indicates that this project should be considered and the question as to its propriety should be determined. It is probable that the commission will propose the creation of a department devoted to the supervision of hospitals and that instead of expending such an enormous sum on a single hospital a large number of emergency hospitals will be recommended, properly distributed over the city.

The Cartwright Lectures.

This series of lectures is to be delivered this year by Baron Takaki, Surgeon-General (reserve) of the Japanese Navy. His subject will be Sanitation Experiences of the late Japanese-Russian War. The distinguished lecturer has on several occasions given brief addresses on some phases of his experience in the Japanese Navy, the sanitary and medical systems of which he reorganised. These lectures have been full of interest and it is anticipated that the course of three lectures will be replete with instruction, as they will embody full details of the method of reorganising the medical service of the Japanese Navy and copious illustrations of the results during the late war.

A Serum for the Cure of Goitre.

Much interest has been excited in the profession by the announcement of a physician connected with the Cornell Laboratories that a serum had been discovered which rapidly effected relief in exophthalmic goitre. On inquiry at the laboratories it was learned that a serum had been prepared from diseased thyroids of human subjects which had proved remarkably successful in the treatment of severe cases of goitre. In the case of the wife of one of the professors, who was believed to be in a hopeless condition, the relief was rapid after one injection of the serum. Three treatments have greatly reduced the swelling and the acute

symptoms have altogether disappeared. The discoverer, Dr. Rogers, regards the remedy as in an experimental stage but is satisfied that an important step is about to be taken in the treatment of goitre.

Warren Triennial Prize.

The Warren Triennial Prize, which was founded by Dr. J. Mason Warren in memory of his father and is awarded every three years, amounts for the year 1907 to $500. The matter for competition for the year is some special subject in physiology, surgery, or pathology. The arbitrators are the physicians and surgeons of the Massachusetts General Hospital, and Dr. Herbert B. Howard of Boston, who announces the particulars, states that dissertations will be received until April 14th, 1907. They must be legibly written and suitably bound. The name of the writer must be inclosed in a sealed envelope, on which must be written a motto corresponding with one on the dissertation.

Feb. 18th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

A New Surgical Hospital for Calcutta.

A CEREMONY of considerable interest has just been performed at the laying of the foundation-stone of the new surgical block of the Medical College Hospital, Calcutta, because it was conducted masonically and in the presence of the Viceroy. The original building was constructed 60 years ago in the time of Lord Dalhousie and the foundation-stone was then laid with masonic ritual. The new surgical block is based on that of the Betinda Hospital at Vienna. It is two storeys high but is set upon a raised plinth eight feet high, as in the case of the European General Hospital in Calcutta, and space exists in the basement for store-rooms and necessary offices. Over the central portion of the building it is proposed to provide quarters for the two resident surgeons and the laboratories. There will be eight main wards of ten beds each and eight small private rooms, each containing one bed or a total of 88 patients. Marble flooring and dados will be provided throughout the hospital and special arrangements will be made to see that the walls are non-absorbent and washable and that they present no joints, ledges, or rough surfaces where dust can accumulate. The sanitary fittings will be of the most modern character, there will be a complete electrical installation, including an electric lift, and hot and cold water will be laid on to all parts of the building. The cost is estimated at about Rs. 6,25,000 (say £42,000). It is hoped to establish also paying wards for Indian patients, to be built on the cottage hospital plan, and so arranged that the patients will be able to bring their families with them and to cook their own food. It is proposed to establish 20 such private rooms. It is for this new surgical block that the Prince of Wales recently allotted Rs. 90,000 out of the lakh of rupees generously given by the Maharaja of Dhurbanga. For the cottage hospital wards considerable subscriptions have also been received. At the conclusion of the ceremony the Viceroy announced that the new surgical hospital would be known as the Prince of Wales Hospital.

Small-pox in Calcutta and Rangoon.

Just at the present time Calcutta is suffering from a somewhat severe outbreak of small-pox. Cholera is also prevalent and the annual recrudescence of plague is commencing. The mortality for the next few months will therefore probably be high. Rangoon is also suffering from small-pox, some 425 cases having been reported during January. In this latter city 2969 cases of plague with 2672 deaths occurred during the year—viz., from Feb. 4th, 1905, to Feb. 4th, 1906. This gives a case mortality of about 90 per cent.

Feb. 9th.

Obituary.

WALTER FREDERICK MITCHELL, M.R.C.S. ENG., L.S.A.

Mr. W. F. Mitchell, who died in St. Bartholomew's Hospital on Feb. 19th, might be said to have had a life-long association with that institution. He was born there some 53 years ago, his father, the late Rev. Walter Mitchell, having been chaplain or "hospitaller" as the official designation is. When he resolved to follow a medical career he naturally received his professional training in St. Bartholomew's Hospital and became qualified in 1883, taking the diplomas of L.S.A. in that year and M.R.C.S. Eng. in 1886. Mr. Mitchell at one time held a temporary appointment in the hospital; his residence was afterwards in the immediate neighbourhood, and he had a considerable practice among the residential population of the district.

ALEXANDER HENLEY ATTWATER, M.R.C.S. ENG.

Mr. A. H. Attwater died at his residence, Newton-street, Bampton, Devon, on Feb. 17th, in his eighty-sixth year. The deceased received his medical education at the Middlesex Hospital, and after obtaining the diploma of M.R.C.S. Eng. in 1859 he commenced practice in his native town of South Molton. He displayed great interest in local matters and was several times elected mayor of South Molton. In 1880 Mr. Attwater removed to Bampton, where he remained in active practice until 1893, when he retired and since then has resided partly at Exeter and partly at Bampton. Mr. Attwater was highly respected in Bampton and the district. He leaves two daughters and three sons to mourn their loss.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in February the following candidates passed in the subjects indicated:—

Surgery.—W. G. H. Cable (Sections I. and II.), London Hospital; M. O. Dollie (Sections I. and II.), University College Hospital; C. H. J. Fagan (Section I.), St. George's Hospital; C. W. Gibson, Guy's Hospital; P. Moxey (Section I.), Bristol; R. J. S. Verity, Charing Cross Hospital; and A. P. Wright (Sections I. and II.), Glasgow and Liverpool.

Medicine.—D. L. E. Bolton, St. Bartholomew's Hospital; T. P. Braim, Leeds; H. S. Burnell-Jones (Section II.), Cardiff, Leeds, and London Hospital; R. C. T. Evans (Section I.), University College Hospital; A. J. Hopper (Sections I. and II.), Durham; P. Moxey (Section I.), Bristol; J. P. B. Snell (Sections I. and II.), Middlesex Hospital; and M. C. Vivian (Section II.), Royal Free Hospital.

Forensic Medicine.—T. P. Braim, Leeds; J. L. Meynell, London Hospital; P. Moxey, Bristol; and N. C. Wallis, London Hospital.

Midwifery.—T. P. Braim, Leeds; and N. C. Wallis, London Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—W. G. H. Cable, M. O. Dollie, C. W. Gibson, J. P. B. Snell, R. J. S. Verity, and M. C. Vivian.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates having passed the necessary examination have been admitted Fellows of the College:—

A. Charles, L.R.C.S. Irel., W. C. Cremin, L.R.C.S. Irel., C. A. Cusack, L.R.C.S. Irel., and T. H. Delany, B.Ch. R.U.I., I.M.S.

The following have passed the primary part of the Fellowship examination:—

S. Blake, T. C. Boyd, Miss M. Clarke, J. C. L. Day, F. N. Holden, J. R. D. Holtby, A. E. S. Martin, E. Montgomery, J. Campbell-Murray, K. F. P. Rynd Murray, W. G. Ridgway, G. W. Stanley, and W. M. Woods.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. Kolle of the Berlin Institute of Infectious Diseases has been offered the chair of Hygiene.—*Düsseldorf (Academy of Practical Medicine):* Dr. Martin Benno Schmidt of Strasburg has been offered the chair of Pathological Anatomy; Dr. Ffalz of Düsseldorf that of Ophthalmology; and Dr. Stern of Düsseldorf that of Dermatology.—*Freiburg:* Professor Schmorl of Dresden and formerly of Leipsic has been appointed to the chair of Pathological Anatomy vacant by the death of Professor Ziegler.—*Giessen:* Dr. Ritter von Tabora has been recognised as *privat-docent* of Interna Medicine; Dr. Leutert, Professor of Otology, who had been offered the corresponding chair at Königsberg in succession to Dr. Berthold, has decided to remain in Giessen.—*Jena:* Dr. Ernst Mangold has been recognised as *privat-docent* of Physiology.—*Munich:* Professor Czerny of Breslau has been offered the chair of Children's Diseases in succession to Professor Rankes.—*Rome:* Dr. Agostino Carducci has been recognised as *privat-docent* of Internal Pathology.—*St. Petersburg (Military Medical Academy):* Dr. A. Ignatovski has been recognised as *privat-docent* of Internal Medicine.—

Turin: Dr. Giuseppe Gradenigo has been appointed Extraordinary Professor of Otology and Laryngology. — *Würzburg:* Dr. Walther Straub of Marburg has been offered the chair of Pharmacology in succession to the late Professor Kunkel.

THE VOICE-TRAINING SOCIETY (OXFORD UNIVERSITY BRANCH).—The Regius Professor of Medicine will preside at a meeting at Christ Church to-day, Friday, March 2nd, at 5 P.M., when a short lecture on Voice-destruction will be given by Miss D'Orsey.

MEDICAL MAGISTRATES.—The name of Dr. Robert Saundby has been added to the commission of the peace for the county of Warwick and that of Dr. Robert Leamon Bowles has been placed on the commission of the peace for the county of Gloucester.

UNIVERSITY OF CAMBRIDGE.—The third examination (Part II.) for the degrees of M.B. and B.C. will begin this term on April 24th. The examination for the degree of M.C. will begin on April 26th.—Professor W. Osler has been appointed an examiner in medicine in the place of Dr. W. Hale White who is unable to examine.—The grateful thanks of the University have been voted to Lord Rayleigh, President of the Royal Society, for his munificent gift of £7733 12*s.* 8*d.*, being the amount of the Nobel prize awarded him in 1904.—Sir George Darwin, K.C.B., Plumian Professor of Astronomy, is to represent the University at the bicentenary celebration of Benjamin Franklin's birth to be held at Philadelphia in April.—Professor B. C. A. Windle, F.R.S., President of Queen's College, Cork, has been appointed an elector to the chair of Anatomy; Professor F. W. Oliver, University College, London, an elector to the chair of Botany; Lord Walsingham, LL.D., an elector to the chair of Zoology and Comparative Anatomy; Mr. Jonathan Hutchinson, F.R.S., an elector to the chair of Surgery; and Earl Carrington, G.C.M.G., an elector to the chair of Agriculture.

PROSECUTION OF AN UNQUALIFIED PRACTITIONER.—At the Bristol police-court on Feb. 13th Frank Lee of the "Bristol Electropathic Institution" was summoned for using the name and title of "Doctor" unlawfully, he not being a person registered under the Medical Acts. The prosecution was conducted by the Medical Defence Union. Evidence showed that at the "Electropathic Institute" the defendant informed patients that he was "Dr. Lee." For the defence it was contended that the man had the "degree of doctor of medicine of America and was also Master of Electro-Therapeutics, the highest degree obtainable." It was further stated that the defendant was only a salaried official of the "Institute" and that the place really belonged to a "clergyman and a justice of the peace"; the names of these gentlemen were written down and handed to the bench of magistrates. The magistrates inflicted a fine of £10 and £5 costs.

ROYAL FREE HOSPITAL.—The Earl of Sandwich presided on Feb. 21st at the seventy-eighth annual court of the Royal Free Hospital, Gray's Inn-road, London, W.C., at which there was a large attendance of governors and friends. The annual report stated that the total number of patients who had been treated during the past year was 45,480, of whom 2329 were in-patients. As was shown by a census taken early in the year the larger proportion of these patients came from the immediate neighbourhood of the hospital, which is one of the poorest and most crowded districts in London. In moving the adoption of the report Mr. Charles Burt, the treasurer, referred to the completion of the scheme of structural improvements which had been commenced two years since and which had brought all the wards and their equipment up to the standard of modern hospital requirements. Much work, however, remained to be done, a second operating theatre and a new out-patient department being both urgently needed, but these improvements would involve a very heavy outlay as they could not be carried out without the acquisition of more land, the present site being fully occupied. Mr. Burt also stated that a further contribution of £1000 had been received that day from the trustees of the estate of the late Mr. S. R. Zunz. In seconding the adoption of the report, which was carried, Mr. Charles W. Blackman referred to the great need for increased financial assistance, the income of the hospital to be relied on being only about one-third of the cost of maintenance, which amounts to over £1500 per annum, and he urged the governors to assist the committee of management by obtaining new subscribers to the funds.

LONGEVITY.—Mrs. Honor Coleman of Cleeve, Somerset, celebrated the 105th anniversary of her birth on Feb. 22nd.

SUPERANNUATION GRANT.—At the meeting of the Clutton (Somerset) board of guardians held on Feb. 23rd Mr. Alexander Waugh, who recently resigned the post of medical officer of the Midsomer Norton district after 40 years' service, was granted a superannuation allowance and it was unanimously resolved to place on record the guardians' appreciation of his long and faithful service and his kindness to the poor.

ROYAL EDINBURGH LUNATIC ASYLUM.—Mr. David Scott Moncrieff, W.S., clerk and treasurer of the Royal Edinburgh Lunatic Asylum, and the oldest official of the institution, has been presented with a service of silver plate in appreciation of his work on behalf of the asylum for the past 50 years. The presentation took place at a dinner held at the Caledonian Hotel, Edinburgh. Most of the present managers of the institution were present, together with Dr. T. S. Clouston, the physician-superintendent, and ten other medical men, most of whom had at some time held appointments in the asylum.

CHARING CROSS HOSPITAL.—On Feb. 23rd the annual general court of governors of Charing Cross Hospital was held in the board room of the hospital under the presidency of the Hon. W. F. D. Smith, M.P. The report to the governors and subscribers stated that while 90 beds had been opened in new wards the closing of the old wards put 51 beds out of use; the total number of beds in use was 187. There was a mortgage for £85,000 in connexion with the improvements which had been made in the hospital buildings and there were still £6400 owing on the building and furnishing account. The number of patients treated during 1905 was 23,017, of whom 2465 were in-patients and 20,552 out-patients, including 10,385 casualties. A special effort is to be made during the coming year to raise the necessary funds to relieve the hospital from its serious financial distress. To pay off the debts and place the finances of the hospital in a sound condition £120,000 are required and the council earnestly pleads for additional support. The chairman, in moving the adoption of the report, wished that it was possible to congratulate the court upon the financial position of the hospital and to say that the new buildings had been paid for when they were completed, but, unfortunately, he was unable to do so. General Sir Alexander Badcock seconded the motion, which was adopted.

ROYAL LONDON OPHTHALMIC HOSPITAL.—The annual general meeting of the friends and supporters of the Royal London Ophthalmic Hospital was held on Feb. 22nd at the institution, City-road, E.C., Lord Avebury, the President, being in the chair. The report stated that in 1905 20 beds still remained closed owing to want of funds. The total number of in-patients was 2051. The out-patients numbered 42,336 and the total number of attendances was 127,873, the daily number of out-patients' attendances being 418. Lord Avebury, in proposing the adoption of the report, said that the work during the past year had been as great as that in any previous period. The decrease in donations had been serious and the expenditure had been about the same as in the previous year. Having regard to the necessity of providing proper food for the patients and of keeping up the hospital in an efficient manner it was not advisable to endeavour to effect any further great reduction of expenditure. This was the oldest eye hospital in the kingdom for the relief of the poor from every country and in it many discoveries in ophthalmic surgery had been made. He hoped that next year he would be able to say that increased subscriptions had come in and that all the beds had been opened. Mr. H. P. Sturgis, in seconding the motion, referred to the help that the institution had received from the Ladies' Guild, which had supplied all the linen and clothing necessary, besides giving considerable monetary help. He considered that if the needs of this hospital were known it would never be in want of funds. The report was unanimously adopted and the remaining business was transacted.

KING'S COLLEGE, LONDON.—In order to facilitate the separation of the department of preliminary and intermediate medical studies carried on at King's College from the department of advanced medical studies carried on at King's College Hospital, Dr. F. W. Tunnicliffe, who holds appointments in both departments, has resigned the chair of materia medica and pharmacology.

TORBAY HOSPITAL, TORQUAY.—The annual meeting of the subscribers to this institution was held on Feb. 15th. The report stated that 537 in-patients and 1434 out-patients were treated during 1905, being an increase as compared with the previous year; 547 patients are on the books of the Provident Dispensary in connexion with the hospital. The receipts amounted to £2511 and the expenditure to £2732. £1943 have been subscribed for the establishment of a children's ward and new operating theatre, plans have been prepared, and the work will shortly be commenced. The recent bazaar which was held in aid of the funds of the hospital resulted in the sum of £1113 being handed to the treasurer of the institution.

TRAINED NURSES' ANNUITY FUND.—The thirty-first annual report of this fund for the year ending Dec. 31st, 1905, of which H.R.H. the Princess Christian is President, has just been issued. Regret is expressed at the death of Lady Bloomfield, the founder. £500 have been subscribed as a memorial annuity of her, thus making the fourteenth annuity, but there are many applicants on the "approved candidate" list, all of whom are in great need of immediate assistance. In 1904 an effort was made to make the fund more widely known. The immediate response was small but during 1905 nurses have collected or contributed nearly £40, and every little helps towards building up another annuity. A donation of £500 will secure an immediate annuity of £17 for a nominee of the donor who may give a name to that annuity in perpetuity subject to approval by the council. The fund is especially for those nurses who break down in the midst of their careers and so cannot secure adequate pensions by insurance but the council gives a preference to nurses who can prove that they have saved money regularly during their active nursing life. The council now feels that as the work of nursing has developed to so great an extent an earnest appeal must be made to the public for help, and those willing to collect or to contribute are requested to communicate with the honorary secretary, Dr. A. Ogier Ward, 73, Cheapside, London, E.C.

CENTRAL MIDWIVES BOARD.—The members of the Central Midwives Board held a meeting on Feb. 22nd at 6, Suffolk-street, London, Dr. F. H. Champneys being in the chair. A communication was received from Dr. A. Stookes of Liverpool as to the scope of the teaching prescribed by the Board on the subjects of sanitation and emergencies. Dr. J. H. Fairbairn and Mr. H. T. Hicks also sent a letter concerning the defective training of a candidate at a recent examination of the Board and a letter was read from Dr. W. C. Swayne on behalf of the examiners for the Bristol centre drawing attention to the defaults of some of the candidates at the examinations. It was decided by the Board that these letters should be considered when the rules of the Board were revised. Dr. W. E. Fothergill, on behalf of the examiners for the Manchester centre, suggested in an interesting letter that the Board should publish an official handbook for midwives with a view to securing uniformity of teaching. After a short discussion it was arranged that the examiners of the Board should be invited to meet and to consider this suggestion. A communication was received from Mrs. Heywood Johnstone on behalf of the executive committee of the Rural Midwives Association as to the difficulties experienced by women of the working class when appearing before the examiners. Mrs. Johnstone especially emphasised the point that many of these women through nervousness failed to do themselves justice at the examination though they were thoroughly fitted by experience for performing the duties of a midwife. It was arranged that the chairman of the Board should write to Mrs. Heywood Johnstone and assure her that the examiners made every allowance for nervousness on the part of candidates at the examination. The clerk of the London County Council having written to the Board asking whether Rule E 21 in Section E of the rules of the Board regulating the practice of midwives applied to a nursing home the secretary of the Board was instructed to reply that in the opinion of the Central Midwives Board the nursing home referred to did not come under Rule E 21. The section, it may be remembered, provides that certified midwives exercising their calling in hospitals, workhouses, or Poor-law infirmaries under the supervision of a duly appointed medical officer enjoy exemption from the Act.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—Mr. G. A. Garry Simpson, M.R.C.S. Eng., has been presented by the members of the Acton district council with his portrait, a life-sized permanent carbon photograph framed in Gothic stained oak with gold inset, in recognition of his merits as medical officer of health for the district during a period of 11 years.—At the Devon County Asylum on Feb. 14th Mr. J. Lougheed Baskin, L.R.C.P., L.R.C.S. Edin., senior assistant medical Oofficer, who has been for nearly six years associated with the Devon Asylum, was presented by the officers and staff with an inscribed silver salver and pair of silver vases with monogram on the occasion of his resigning the above appointment to take up the superintendentship of the Fisherton Asylum, Salisbury. The presentation was made on behalf of the subscribers by the medical superintendent, Mr. A. N. Davis, L.R.C.P., L.R.C.S. Edin.—Mr. R. R. Harper, L.R.C.P. Lond., M.R.C.S. Eng., has recently been presented with a pair of silver candelabra and a silver bowl by his many friends at Holbeach, where for many years he has been in practice. The presentation was made in the public hall by Alderman W. H. West, J.P. In his reply Mr. Harper said that he had spent the whole of his life at Holbeach and looked upon it as his native place, though he was a year old when he came to the town. He regretted that it was necessary to sever his connexion with Holbeach, but he felt that the medical work entailed too great a strain upon him.

ROYAL METEOROLOGICAL SOCIETY.—The usual monthly meeting of this society was held on Feb. 21st at the society's rooms, Mr. Richard Bentley, the President, being in the chair.—Mr. E. Mawley read his report on the Phenological Observations for 1905. He said that as affecting vegetation the weather of the phenological year ending November, 1905, was chiefly remarkable for the dryness and mildness of the winter months, the drought and frosts in May, the long spell of hot and dry weather in July, and an exceptionally cold period in October. Wild plants came into flower a few days earlier than usual until about the beginning of May, after which time they were as a rule to about the same extent late. Most of the early spring migrants, such as the swallow, the nightingale, &c., reached these shores in advance of their average dates. The best farm crops of the year were those of wheat, beans, and hops, while barley, potatoes, turnips, and mangolds were all more or less over the average. On the other hand the yield of oats, peas, and hay was almost everywhere deficient, the last being the worst crop of the year. Apples, pears, and plums were in all parts of the British Isles below the average, whereas the small fruits as a rule yielded well. Taking the farm crops alone the past year must be regarded as having been on the whole a fairly bountiful one. The other papers read were: Brief Discussion of the General Features of the Pressure and Wind Conditions over the Trades-Monsoon Area, by Mr. W. L. Dallas; and the Dispersal or Prevention of Fogs, by Dr. B. W. Newton.

ASSOCIATION OF THE MEDICAL DIPLOMATES OF SCOTLAND.—This association held its annual dinner on Feb. 23rd, under the chairmanship of Dr. Claude St. Aubyn-Farrer, at the Trocadéro Restaurant, London. The efforts of the honorary secretary of the dinner committee, Dr. E. N. Féré, were rewarded by a large gathering of members and friends. Mr. H. R. Heather Bigg proposed, and Brigade-Surgeon-Lieutenant-Colonel E. J. Hunter responded to, the toast of "The Navy, Army, and Auxiliary Forces." Dr. C. W. MacGillivray (President of the Royal College of Surgeons of Edinburgh) in proposing the toast of the evening, "The Association of Medical Diplomates of Scotland," announced in regard to the question of altering the name of Licentiates of his College to Members, that the matter was receiving the anxious and prolonged consideration of his colleagues. After the chairman had made a suitable reply to this toast Mr. Sydney Stephenson submitted "The Guests," which was acknowledged by Sir Lauder Brunton, Mr. J. Tweedy, and Mr. L. A. Bidwell. Mr. Tweedy, commenting on the rise and

progress of the various universities of recent origin, advocated a combination of the medical corporations of the United Kingdom in order to secure efficient control of medical education in its examinations. Dr. H. W. Fitzgerald Powell then invited Dr. MacGillivray to respond for the visitors and after that had been done Dr. David Walsh said that Dr. G. Herschell, Dr. G. Carpenter, and Mr. E. Canny Ryall, the honorary secretary of the Irish Medical Schools and Graduates' Association, would also respond to "The Visitors." The evening concluded by Mr. Skene Keith proposing, and Dr. Walsh responding to, the toast of "The Council and Officers of the Association."

THE approaching retirement of Mr. J. Bland-Sutton from the chairmanship of the Westminster division of the British Medical Association was marked by a banquet given to the members of the division on Feb. 22nd, which took place in the Court of White Marble (Apadama) built by him at his residence. The guests were welcomed in the study, which is remarkable for its Egyptian decorations, and from this room admission was obtained to the court by a flight of marble steps flanked on each side with a bas-relief of a lion attacking a bull copied from the ruins of a well-known palace at Persepolis. The court, which is a replica of the Paris model of the marble hall of the great King Artaxerxes, the son of King Darius, contains 32 columns each 16 feet high. On the top of these the heads of Assyrian bulls support the roof. The columns are gleaming white and stand out against the walls which are faced with enamelled bricks of a pale greenish-blue fading into straw colour. The frieze represents the black and white archers of the bodyguard of the great king. A striking decoration is the symbol of Ormuzd, the Persian spirit of creation and of good, presenting wide wings in deep turquoise blue enamel tiles with a very fine effect. To appreciate fully the beauty of this exquisite court of dazzling white marble with its walls flooded with tender enamel tints it is necessary to supplement description with inspection and it certainly affords an interesting example of a type of architecture peculiarly Persian. The enjoyment of the evening by the 56 guests was enhanced by the fact that there were no speeches, though all applauded Mr. Andrew Clark when he thanked Mr. Bland-Sutton for his hospitality.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Parliament.

IT is too early yet to come to any decision about the new Parliament. To a certain extent it may be supposed that the feelings of the onlooker are somewhat like those of the men who watched the assembling of the Parliament which followed the passing of the great Reform Bill. Now, as then, a large section of the Members represent a new element in the political life of the country and time must be given for the development of events before we think of nodding approval or shaking solemn heads. How the changes may affect the medical profession will depend in large measure upon the very small group of Members who are identified with it. Sir JOHN BATTY TUKE and Sir WALTER FOSTER are still to the fore, but the defeat of Dr. C. F. HUTCHINSON and the voluntary retirement of Dr. R. FARQUHARSON deprive the House of men who did useful work. Dr. FARQUHARSON'S disappearance is much regretted by both sides. Amongst private Members none was more deservedly popular. Whatever be the record of Parliament in other directions it can be predicted with some confidence that matters affecting public health and the sanitary conditions of life in factories and workshops will be kept much in evidence. These are questions upon which the Labour Members are particularly keen, and things will be attempted which the last Government could not touch. Whether much legislation will issue is another affair.

Private Members' Bills.

The ballot for places for Bills is, from the private Member's point of view, one of the most important events of the session. Success in the ballot makes a man conspicuous; it gives him the chance of obtaining a second reading for a piece of legislation of his own creation, and if fate still smiles upon him, of placing an Act upon the Statute book. As was expected, the number of Members who participated on this occasion was unusually large and so eager were those new to the House to have the honour of seeing their schemes "set up" in all the dignity of Bills that although not more than the first ten measures on the list have the smallest chance of success, 45 Bills were presented and read a first time, the necessary preliminary to printing. Since then notice has been given of about as many more. Seventh on the ballot list stands the Pure Beer Bill, for which Sir CUTHBERT QUILTER made himself responsible so often. Its official title is "A Bill to Amend the Law relating to the Manufacture and Sale of Beer." The motion for the second reading and the debate have been put down for Friday, March 16th. Next on the list is a Bill to amend the Housing of the Working Classes Acts and otherwise to facilitate the building of houses for the working classes in rural districts. Sir WALTER FOSTER is numbered with its supporters. Then comes a Bill to provide meals for school children.

A Pharmacy Bill.

Although unsuccessful in the ballot Mr. WINFREY has presented his Bill to provide for the further regulation of the sale of poisons and the compounding of medical prescriptions and to amend the Pharmacy Acts, 1852 and 1868.

HOUSE OF COMMONS.

THURSDAY, FEB. 22ND.

Evils arising from Child Insurance.

Sir WILLIAM EVANS-GORDON asked the Home Secretary whether his attention had been called to the comments on the evils arising from child insurance which were made by the magistrate at the Clerkenwell police court in a recent case and whether he contemplated taking any action in the matter.—Mr. GLADSTONE answered: I have seen the comments of the magistrate upon the case to which the honourable Member refers. The criminal law on the subject could hardly be made more severe than it now is. A parent who insures her child and then is guilty of cruelty or culpable neglect is liable to penal servitude for five years under Section 1, Subsection 4, of the Prevention of Cruelty to Children Act, 1904. The imposition of further restrictions on the insurance of children involves questions of much difficulty and various proposals for legislation have not met with success; but I will bring the question to the notice of the Treasury which is, I understand, considering other aspects of this matter.

The Pollution of the Thames.

Mr. MORTON asked the President of the Local Government Board whether he was aware that the estuary of the river Thames was being polluted by the discharge of crude sewage from the towns of Sheerness, Southend, and Whitstable, and whether he would communicate with the authorities of those towns urging upon them the importance, in the interests of public health, of adopting some method of sewage purification without further delay.—Mr. BURNS replied: I am aware of the discharge of crude sewage into tidal waters in the cases mentioned. As regards Whitstable, the Local Government Board wrote to the district council last year and the council contended that in the circumstances of its district it would not be justified in incurring the expenditure necessary for carrying out works for the treatment of the sewage. I will communicate with the town councils of Sheerness and Southend, but as respects Southend it is fair to say that the alleged pollution has recently been the subject of judicial decision and I understand it is possible that the case may be carried to a higher court.

Infantile Mortality.

Mr. T. W. RUSSELL asked the Chief Secretary for Ireland what was the rate of infantile mortality within the North Dublin union workhouse as disclosed by the recent Local Government Board inquiry into the subject.—Mr. BRYCE answered: During the three years ending June 30th, 1904, there were approximately 333 deaths of children under two years of age in the two nurseries of this workhouse and of the children transferred to extern hospitals 69 died, so that the total number of deaths was about 402 out of probably less than 1000 children. As a result of the Local Government Board medical inspector's inquiry in the matter considerable improvements have been made in the structure and administration of the infant department.

The Importation of Boneless Meat.

Mr. FIELD asked the President of the Local Government Board whether any inspection was made of the boneless meat imported into Great Britain; whether he would cause inquiries to be made; and whether he had any official information showing that this imported boneless meat was being extensively used to make sausages, advertised and sold as native pork sausages.—Mr. BURNS answered: I understand that inspection of imported boneless meat is frequently made at the Central Meat Market in London and also to some extent by officers of metropolitan borough councils. I cannot say how far such inspection is made elsewhere in England and Wales, with which I am alone concerned, but I will consider how far it may be practicable to obtain information on the subject. I am informed that in London packages of American "pork cuttings," which are included in the boneless meat above referred to, are sold at the Central Meat Market to sausage makers, but I do not know whether sausages manufactured from these pork cuttings are advertised or sold as native pork sausages.

Royal Commission on Tuberculosis.

Mr. FIELD asked the President of the Local Government Board whether he could state when the report of the Royal Commission on Tuberculosis, especially respecting the experiments being carried on at Stanstead farm, would be issued.—Mr. BURNS replied: I understand that the Royal Commission has a report in preparation, together with an appendix containing the details of a large amount of experimental work. I cannot say precisely when it will be issued but I am informed that it is being pressed forward as speedily as practicable.

TUESDAY, FEB. 27TH.

Sale of Tobacco to Children.

Dr. MACNAMARA asked the Secretary of State for the Home Department whether his attention had been called to the recommendation of the Committee on Physical Deterioration (1904) to the effect that a Bill should be brought before Parliament at an early date having for its object the prohibition of the sale of tobacco and cigarettes to children below a certain age; and whether he was now in a position to say that this recommendation would be acted upon in the present session.—Mr. GLADSTONE replied: I am aware of the recommendations in the report referred to and I will give the matter my careful consideration, but I am not yet in a position to make any statement as to legislation.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADAMS, JOSEPH DIXON, M.D. St. And., M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health for the Yeovil Rural District Council.

CHADBORN, C. N., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Anæsthetist to the Sussex County Hospital, Brighton.

COSENS, WILLIAM BURROUGH, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, for Weymouth County Court, in County Court Circuit No. 55.

COXON, STEPHEN A. T., L.D.S. R.C.S. Irel., has been appointed Honorary Dental Surgeon to the West Norfolk and Lynn Hospital.

FISCH, G., M.R.C.S., L.R.C.P. Lond., has been appointed Junior House Surgeon at the Radcliffe Infirmary, Oxford.

HAMILTON, A., L.R.C.P., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ashton-under-Lyne District of the county of Lancaster.

HOPEWELL-SMITH, A., L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., has been appointed the External Examiner in Operative Dental Surgery, Dental Anatomy, Pathology, Bacteriology, &c., for the Third and Final Examinations for the newly instituted Degrees in Dental Surgery of the University of Liverpool.

HORNER, N. G., B.A. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the Westminster Hospital.

MACGILVRAY, W. J. HOOKER, L.R.C.P., L.R.C.S., L.M. Edin., L.F.P.S., L.M. Glasg., has been appointed Medical Officer to the Royal Liver Friendly Society for Manchester, Salford, and District.

MACILWAINE, J. E., M.D. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the North Belfast District of the counties of Antrim and Down.

MALLAM, ERNEST, M.B., B.S. Oxon., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Oxford District of the counties of Oxford and Berks.

MONCKTON, WILLIAM, L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health of Portishead (Somerset).

MULLIGAN, E., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Foxford District of the county of Mayo.

PARDEY, J. M., M.B., Ch.B. Melb., has been appointed Honorary Medical Officer at the Launceston Hospital, Tasmania.

PARK, J. R. S., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Dukinfield District of the county of Chester.

PIKE, C. J., M.B., Ch.B. Lond., has been appointed a Member of the Board of Management of the Launceston General Hospital, Tasmania.

PURDON, E. B., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the South Belfast District of the counties of Antrim and Down.

RISIEN, E. RUSSELL, L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the East Ilsley District of the county of Berks.

SHEPPARD, A. L., M.B., B.S. Durh., has been appointed Senior House Physician at the Bristol Royal Infirmary.

SKINNER, GEORGE H., M.R.C.S., L.R.C.P. Lond., has been appointed Deputy Port Health Officer for Launceston, Tasmania.

THOMPSON, L. G., M.D. Aberd., has been appointed a Member of the Board of Management of the Launceston General Hospital, Tasmania.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—House Surgeon. Honorarium £100, with board, residence, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100.

BRISTOL, BRISLINGTON HOUSE PRIVATE ASYLUM.—Assistant Medical Officer, unmarried. Salary £160.

BURY INFIRMARY.—Junior House Surgeon. Salary £80, with board, residence, and attendance.

CANCER HOSPITAL, Fulham-road, London, S.W.—Junior House Surgeon for six months. Salary £70 per annum, with board and residence.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, laundry, &c.

EVELINA HOSPITAL, Southwark Bridge-road, London, S.E.—Assistant House Surgeon for three months. Salary at rate of £70 per annum, with board, residence and washing.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall Bridge-road, S.W.—Resident House Surgeon.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Resident House Surgeon. Salary £100, with board, residence, and laundry.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for six months, eligible for re-election. Salary £80 per annum, with board and residence.

JERUSALEM, BRITISH OPHTHALMIC HOSPITAL.—Assistant Surgeon. Salary £300 a year, with residence.

LEITH HOSPITAL.—Assistant House Surgeon, Assistant House Physician, and Surgeon, all for six months.

LONDON COUNTY COUNCIL ASYLUMS.—Assistant to the Pathologist. Salary £250 per annum.

LONDON HOSPITAL PATHOLOGICAL INSTITUTE.—Director. Salary £500.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £120 per annum, with board and residence.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Also Casualty Officer.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

PARISH OF SAINT LEONARD, Shoreditch.—Medical Officer to Cottage Homes at Hornchurch, Essex. Salary £130 per annum, rising to £150.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary at rate of £80 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square.—Lecturer on Dental Metallurgy and Practical Dental Metallurgy. Also Lecturer on Dental Mechanics.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £80 per annum, with board, lodging, and washing.

SHEFFIELD FEVER HOSPITALS.—Junior Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

SHREWSBURY, SALOP INFIRMARY.—House Physician, unmarried. Salary at rate of £50 per annum, with board and apartments.

STOKE-UPON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Senior House Surgeon. Salary £100 per annum, with apartments, board, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Honorarium of £25, with board and lodging.

WALSALL AND DISTRICT HOSPITAL, Walsall.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

WEST BROMWICH DISTRICT HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and three House Surgeons for six months. Board, lodging, and laundry allowance.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—Lecturer on Forensic Medicine.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Dewsbury, in the county of York; at Winchester, in the county of Hants; at Stokenchurch, in the county of Buckingham; at Howden, in the county of York; at Bridgwater, in the county of Somerset; and at Haswell, in the county of Durham. Notice is also given of a vacancy as Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, for the Northern Division of Circuit No. 9.

Births, Marriages, and Deaths.

BIRTHS.

BLACKER.—On Feb. 21st, at 45, Wimpole-street, W., the wife of George Blacker, M.D., F.R.C.P., of a son.

BLABER.—On Feb. 21st, at Sunnybank, Shoot-up-hill, N.W., the wife of Percy L. Blaber, L.R.C.P. Lond., M.R.C.S. Eng., of a son.

CROOKSHANK.—On Feb. 24th, at D'Antraigues, Barnes, S.W., the wife of F. Graham Crookshank, M.D., of a son.

GENTLE.—On Feb. 23rd, at Colville-square, W., the wife of J. Alexander Gentle, M.B., C.M., of a son.

STEELE-PERKINS.—On Feb. 20th, at Southernhay W., Exeter, the wife of J. Shirley Steele-Perkins, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., of a son.

STEPHENS.—On January 25th, at 67, Hopton-road, Streatham, to Ernest H. Stephens, LL.B., solicitor, and Henrietta L. D. Stephens, M.B. Lond., a daughter.

WAYNE-MORGAN.—On Feb. 17th, at Ty Gwyn, Whitchurch, the wife of L. Wayne-Morgan, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

CAMPBELL—IRVING.—On Feb. 26th, at the parish church, Albury, William Graham Campbell, M.B., C.M., to Helen Mary Elise, daughter of Martin Howy Irving, LL.D.

SULLY—KING.—On Feb. 24th, at the parish church of St. Mary, Acton, Albert Max Sully, M.R.C.S., to Adeline, daughter of the late Robert King, J.P., of Durban, South Africa.

DEATH.

KEALY.—On Feb. 17th, at Ashley House, Gosport, John Robert Kealy, M.D., A.K.C., in his 76th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

DIFFICULTIES REGARDING INSANITARY HOUSES.

In THE LANCET of Jan. 28th, 1899, and May 12th, 1900, we commented upon an absurd situation which had arisen in Southwark concerning some cottages in Red Cow-alley. In 1895 these cottages were closed and dismantled by a magistrate's order but were not pulled down. In 1898 the vestry of St. George's, Southwark, made an order upon the representations of the medical officer of health, under the provisions of the Housing of Working Classes Act, 1890, that the cottages should be pulled down as a source of danger to health. The owners appealed and after innumerable delays and reference of the case to various courts the law in April, 1900, finally decided to make no further order for demolition and each side had to pay its own costs. The owners' point was that as no one lived in the houses they were not "dwelling houses" and therefore could not be dealt with under the Act of 1890. We learn, however, that the houses in question are now no longer standing, having been pulled down by the owners, and that the site is vacant.

A somewhat similar fiasco has recently taken place in Birmingham. In September, 1904, the medical officer of health represented to the housing committee that certain houses were in a state so dangerous or injurious to health as to be unfit for human habitation. The housing committee then served notices upon the owner requiring him to carry out certain repairs. The owner thereupon "did a little painting and patching." In June, 1905, the case came into court and the corporation asked for a closing order from the magistrates. The magistrates suggested that certain things should be done. After various adjournments the housing department of the corporation on Dec. 1st, 1905, reported that the repairs asked for by the magistrate had not been carried out. On Dec. 8th the magistrates visited the property and on Dec. 29th they announced in court that the evidence of the housing inspector was correct. The summonses were then dismissed and each side had to pay its own costs. The housing committee in its report to the corporation says: "Your committee are obliged to lay the details of this case before the council, because though a great deal more money has been spent both by the corporation and by the owner than would have sufficed to put the houses in a thoroughly sanitary condition, yet the present condition of the houses and of their appurtenances is far from satisfactory."

We cannot understand why the magistrates dismissed the summonses, for if they were satisfied that the evidence of the housing inspector was correct it would seem to follow that the contention of the owner that the repairs had been satisfactorily carried out was incorrect. In the *Municipal Journal* of Feb. 16th, from which we have taken the details above given, the Rev. T. J. Bass, a well-known parish priest in Birmingham, writing on the case in question, suggests that the Housing of the Working Classes Act should be so amended that two duly trained and qualified surveyors should sit with the magistrates as assessors in sanitary cases. Whatever method of procedure may be adopted it is clear that something should be done whereby owners of slum property could be prevented from standing in the way of local health authorities who are anxious to carry out their duties as guardians of the public health. The Southwark and Birmingham cases which we have cited show only too well the difficulties which exist for local authorities in the removal of nuisances.

THE TITLE OF DOCTOR.

To the Editors of THE LANCET.

SIRS,—For some years it has been very noticeable to ordinary practitioners like myself your great partiality for bestowing the title of "Dr." on M.B.'s, who have no legal right to it, and omitting to do it to others who have not that degree, your bearing in this respect being much more pronounced than that of any other medical journal. Your excuse for doing so probably is the well-worn one of "courtesy" to university graduates (which courtesy might in like manner be extended to B.L.'s, LL.B.'s, B.D.'s, &c.). In Scotland the title is given to all registered practitioners irrespective of qualification. Surely physicians of ripe experience who have not the degree of M.D. are as much entitled to courtesy as some young upstarts with M.B. degree and who crow a good deal about their "privilege" in this respect. If you will make a difference, Sirs, *be fair* and give the title only to those who are legally entitled to it—namely, M.D.'s. Although this is written anonymously it expresses the opinions of general practitioners all over Scotland and Ireland.—I am, Sirs, yours faithfully,

Feb. 17th, 1906. "FIAT JUSTITIA."

PS.—Chambers's Dictionary has among other meanings for "doctor" "a medical practitioner," "a physician."

. We do not pretend to be absolutely logical in the use of the title "Doctor"; it is impossible to be so. Our correspondent will find that the matter has been fully dealt with in the columns of THE LANCET on many occasions and we have explained before now the reasons of our procedure. We should prefer to confine the use of the title strictly to persons possessing the doctorate of a recognised university until such a time as the popular use of the affix shall be also its professional use. But, inasmuch as the Bachelors of Medicine of certain universities frequently never proceed to their doctorates, though none the less holding posts as full physicians to general hospitals and practising as consultants, we have been obliged to make exceptions. When our correspondent talks of "some young upstarts" as being the persons in whose favour exception is made he is simply mis-stating the whole situation entirely, as everyone knows who has taken the trouble to look carefully into a difficult matter. With regard to the use in Scotland by all registered practitioners of the title of "Dr." irrespective of qualification we may point out that an official statement by the Royal College of Physicians of Edinburgh has shown that the use is due to popular custom and is based upon no academic right. So far from our bearing being pronouncedly against the use by all medical men of the title of "Dr." we should like every qualified medical man to be known in professional circles as "Doctor" if he desires to be so addressed, but this, it seems to us, will not be easy of attainment until we have a one-portal system. We refer "Fiat Justitia" and the general practitioners in whose behalf he says he has written to THE LANCET of August 17th, 1895, p. 412, June 10th, 1905, p. 1584, July 8th, 1905, p. 89, and Nov. 25th, 1905, p. 1568. He will find that every point which he has raised has been carefully dealt with.—ED. L.

THE HUMAN BODY AS A WIRELESS TELEGRAPH TRANSMITTER AND RECEIVER.

THE *Scientific American* of Feb. 17th states that during a recent electrical show at the Madison-square Garden in New York a series of experiments with high-potential and high-frequency currents was performed by Professor Ovington of Boston, Massachusetts. In one of these the electric waves were thrown off not from the ordinary vertical conductor used in sending wireless messages but from the body of a young man who was assisting the professor. He stood on the top of a wall with one hand extended above his head and held in the other hand a wire coming from the transmitter. The messages sent from this novel radiating arrangement were received by a De Forest receptor furnished with the usual wire antenna. The potential and frequency of the oscillations were very much in excess of those utilised in the commercial transmission of wireless telegrams and hence the waves radiated were extremely short. It was Professor Tommasini of Geneva who first demonstrated that the human body could be successfully substituted for an aerial metallic conductor of the same length and capacity.

A MEDICAL MAN'S DIFFICULTIES UNDER THE WORKMEN'S COMPENSATION AND EMPLOYERS' LIABILITY ACTS.

To the Editors of THE LANCET.

SIRS,—A large part of my work consists in advising public bodies as to when employés suffering from various injuries, fractures, &c., are likely to be fit for duty. Can anyone refer me to any work where, without having to wade through large systematic treatises, I could get assistance in giving forecasts of the future of this class of case, many of which are taken to court under the Workmen's Compensation and Employers' Liability Acts? Is there any special notebook or table published for the purpose of noting in systematic order the various points connected with medico-legal cases, which would be of assistance both in writing reports on cases and in keeping notes for the purposes of comparison or publication? And, finally, can anyone refer me to a published series of reports to employers on cases of accidents and injuries? I am anxious to see how others state their cases and to improve my style. I am, Sirs, yours faithfully,

Feb. 26th, 1906. MEDICO-LEGAL.

A DESERVING CASE.

To the Editors of THE LANCET.

SIRS,—I have a patient, a delicate man, who has a small appetite and difficulty of digestion. His income I know from friends of his to be very small and he lives alone. I have a strong impression that massage would do him much good but he could not possibly afford to pay for it. Can any reader of THE LANCET suggest a way of helping him?

I am Sirs, yours faithfully,

Feb. 22nd, 1906. C. S.

ADULTERATED DRESS FABRICS.

OUR remarks as to "spun silk" seem to have caused some searchings of heart among the drapery trade. We see that Messrs. Wm. Milner and Sons of Leek, writing in the *Drapers' Record* of Feb. 23rd, point out that spun silk as it leaves the hands of the spinner is practically pure silk, albeit it is waste silk. We are quite aware of this, but it has nothing to do with our remarks which were directed quite clearly against the term "spun silk" as used by drapers to describe the material of which certain grades of stockings, socks, vests, and other articles of underclothing are made. These, in the cheaper qualities, are composed of a mixture of silk and cotton and in the cheapest grade of all there is more cotton than silk. This material should, we contend, not be called "spun silk." We have recently purchased at a small draper's shop in the neighbourhood of the Strand a vest described on the bill as "Spun silk vest 1s. 6½d.," which on examination proved to be practically

all cotton. In fact, the only silk portions were the trimming round the neck, a silk lace to tighten up the neck by, a strip of silk down the opening where the vest buttoned, and a row of silk stitches round the free edges of the bottom of the vest and the seam. The main body of the garment was entirely cotton. This is the kind of fabric to which we should apply the name "spun cotton." We shall be happy to send to Messrs. Wm. Milner and Sons, or the editor of the *Drapers' Record*, half of the garment in question, and to hear if they consider that it is made of "spun silk." The obvious comment that the price of the garment ought to have warned us of its inferiority is beside the point. The vest was sold as "spun silk" in reply to a request for a vest of that material.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me of any institution that would take in an elderly gentleman (76 years of age) who is absolutely without means but for whom his children would be able to pay, say, about 30*s.* per week? He has been long ailing and is suffering from diabetes. He is at present lodging in Birmingham and being practically bedridden his present landlady is unwilling to keep him. He is entirely dependent upon two sons who have families of their own and cannot take him to their own homes. Is there any institution in the country where he could be taken in and cared for at the cost named or is the workhouse infirmary the only resort? Any suggestions would much oblige

Yours faithfully,

New Quay, Liverpool, Feb. 23rd, 1906. H. B. C.

A QUESTION OF EXPENSE.

To the Editors of THE LANCET.

SIRS,—I should be glad if you could allow me to ask through the medium of your correspondence column as to the cost (probable) of living and treatment at Aix-la-Chapelle for an early case of tabes dorsalis, the patient desiring to undergo a course of treatment there for about six weeks. Thanking you in anticipation,

I am, Sirs, yours faithfully,

Feb. 27th, 1906. TABES.

D.P.H.—We have frequently expressed our opinion upon this question. We consider it highly unadvisable that members of the medical profession should administer anæsthetics in connexion with unqualified dentistry.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (7th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (8th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (9th).—London (2 P.M.), St. Batholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (10th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (5th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—9 P.M. Lettsomian Lecture:—Mr. C. A. Ballance: Some Points in the Surgery of Brain Tumour. (Lecture III.)

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—4.30 P.M. Exhibitions, &c., will be given by Dr. F. Potter, Mr. J. S. Barr, Mr. H. Jones, Mr. S. Walker, &c.

TUESDAY (6th).—PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Paper:—Dr. F. G. Hopkins: The Bearing of Recent Research upon some Problems of Urinary Excretion.

WEDNESDAY (7th).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Mrs. Scharlieb, Dr. Lockyer, and Dr. A. Routh. Paper:—Mr. J. D. Malcolm: Peritonitis and the Staphylococcus Albus.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—5 P.M. Paper:—Dr. C. Watson (Edinburgh): Observations on Diet with Special Reference to a Meat Diet and Uric Acid (with lantern demonstrations).

THURSDAY (8th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish square, W.).—8 P.M. Card Specimens will be shown by Mr. S. Stephenson, Mr. A. Levy, and Mr. P. Smith. 8.30 P.M. Papers:—Mr. C. Worth: Hereditary Influence in Myopia.—Mr. J. H. Parsons and Mr. G. Coats: Further History and Pathological Examination of a Case of Microphthalmia associated with Congenital Tumours previously shown by Mr. Parsons.—Mr. P. Smith: A Scotometer for the Rapid Diagnosis of Incipient Glaucoma and other purposes.

BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—7.30 P.M. Special General Meeting. 8 P.M. Specimens will be shown by Dr. Jellet and Mrs. Scharlieb. Papers:—Dr. Jellett: Notes on Two Rare Conditions met with in the Pelvis during Operation.—Mrs. Scharlieb: The Advantages of the Abdominal Route in Operations for Cancer of the Uterus.

FRIDAY (9th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. H. French and Mr. C. B. Ticehurst: A Note upon the Relation of Traumatic Diabetes Insipidus to Glycosuria.—Dr. F. Buzzard and Mr. J. Cunning: A Case of Post-traumatic Hæmorrhage from the Superior Longitudinal Sinus without Fracture of the Skull, Operation and Recovery.—Mr. J. E. Spicer (introduced by Dr. P. Kidd): An Unusual Case of Dilatation of the Stomach following Hour-glass Contraction.—Dr. A. E. Garrod and Dr. Langmead: Associated Malformations, including Transposition of Viscera.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (5th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Hunterian Lecture:—Prof. W. Haward: Phlebitis and Thrombosis.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. H. Sequeira: Clinique. (Skin). 5.15 P.M. Lecture:—Prof. E. F. Trevelyan (Leeds): Infantile Paralysis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinic. 3 P.M. Dr. Hood: Demonstration in Medical Wards. 5 P.M. Mr. Paget: Surgical Cases.

TUESDAY (6th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Milroy Lecture:—Dr. W. H. Hamer: Epidemic Disease in England—the Evidence of Variability and of Persistency of Type.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Ewart: Clinique. (Medical.) 5.15 P.M. Lecture:—Mr. M. Malcolm: Diet in Skin Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinic. 5 P.M. Dr. R. Jones: General Paralysis and its Diagnosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. Tooth: Cranial Nerves.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. W. Stirling: Food and Nutrition. (Lecture V.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Dr. G. F. Still: Pyrexia of Obscure Causation in Children.

WEDNESDAY (7th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Hunterian Lecture:—Prof. W. Haward: Phlebitis and Thrombosis.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical.) 5.15 P.M. Lecture:—Dr. L. Brown: Acid Intoxications.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinic. 5 P.M. Dr. Beddard: Practical Medicine.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration:—Mr. Stuart-Low: Ear.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Demonstration:—Dr. H. Hartley: Types of Pulmonary Tuberculosis

THURSDAY (8th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East.).—5 P.M. Milroy Lecture:—Dr. W. H. Hamer: Epidemic Disease in England—the Evidence of Variability and of Persistency of Type.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Lecture:—Mr. A. H. Tubby: Surgical Diseases of Children.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinic. 4 P.M. Mr. Keetley: Surgical Demonstration. 5 P.M. Mr. Edwards: Carcinoma of the Rectum.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Lecture:—Mr. Malcolm: On Ovarian Tumours.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M. Dr. M. Dockrell: The Relation between Cicatrix, Keloid, Scleroderma, and the Treatment of each. (Chesterfield Lecture.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Dr. L. Dodd: Oral Sepsis in Pulmonary Affections. (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Voelcker: Rheumatism and its Manifestation in Children.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Mr. F. Darwin: The Physiology of Plants. (Lecture II.).

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Dr. A. E. Giles: Suppurative Diseases in the Pelvis.

FRIDAY (9th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Hunterian Lecture:—Prof. W. Haward: Phlebitis and Thrombosis.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. L. Lack: Clinique. (Throat.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinic. 3 P.M. Dr. S. Taylor: Medical Demonstration. 5 P.M. Mr. Dunn: Ocular Symptoms in General Diseases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. Tooth: Cranial Nerves.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Dr. R. Hutchison: Some Dietetic Problems.

SATURDAY (10th).—ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M. Prof. J. J. Thomson: The Corpuscular Theory of Matter. (Lecture II.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest; or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1905, which was completed with the issue of Dec. 30th, were given in THE LANCET of Jan. 6th, 1906.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1905 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half year's numbers are also ready Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

THE LANCET AT THE RAILWAY BOOKSTALLS.

READERS who usually obtain their copies of THE LANCET at the bookstalls on the Great Western, the London and North Western, and the minor systems in connexion with these railways, are requested to communicate with the Manager, 423, Strand, London, W.C., if they experience any difficulty in getting copies of THE LANCET at these bookstalls, Messrs. W. H. Smith and Son's connexion with them having now terminated.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Mar. 1st, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 23	29·56	S.E.	0·01	47	41	36	36	37	Overcast
,, 24	29·71	S.W.	0·01	60	43	31	32	34	Overcast
,, 25	29·41	W.	0·07	87	51	33	39	41	Cloudy
,, 26	29·49	S.W.	...	75	50	41	41	43	Cloudy
,, 27	29·18	S.W.	0·07	72	48	42	43	45	Cloudy
,, 28	29·79	N.	0·03	73	46	35	35	37	Fine
Mar. 1	29·75	W.	0·01	53	49	37	44	46	Overcast

During the week marked copies of the following newspapers have been received: *Manchester City News, Daily Mail (Lincoln), Spalding Free Press, Andover Advertiser, Evening News (Portsmouth), Leamington Spa Courier, Yorkshire Post, Hereford-hire Mercury, Western Mail (Cardiff), Westminster Gazette, Dublin Weekly Times, Liverpool Post and Mercury, Surrey Advertiser, Literary Digest (New York), Scientific American, Manchester Chronicle, Daily Chronicle, Irish Times, Morning Leader, Daily News, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. Bertram Abrahams, Lond.; Dr. H. S. Annett, Liverpool; Mr. J. Astier, Asnières, France; Admiralty, Medical Department, Director-General of; "Another M.O."; "A," Lond.

B.—Mr. Harold Bramwell, Lond.; Dr. F. G. Bushnell, Worthing; Dr. J. Cunningham Bowie, Cardiff; Birkenhead Borough Hospital, Hon. Secretary of; Messrs. Bowyer and Priestley, Huntingdon; *British Journal of Dental Science*, Lond.; Mr. M. R. J. Behrendt, Scunthorpe; Mr. C. Birchall, Liverpool; Bury Infirmary, Secretary of; Bridgwater Hospital, Secretary of; Mr. O. Berthier, Paris; Messrs. W. H. Bailey and Son, Lond.; Birkenhead, &c., Children's Hospital, Secretary of; Dr. T. E. B. Browne, Lond.; Dr. J. M. Booth, Cork; Dr. John Brown, Bacup.

C.—Dr. F. C. Carlé, Sunderland; Messrs. E. Cook and Co., Lond.; Messrs. T. Colman and Co., Lond.; Messrs. A. Constable and Co., Lond.; Cumberland Infirmary, Carlisle, Secretary of; *Chester Courant*, Manager of; Messrs. Corniah Bros., Birmingham; Messrs. Carfax, Lond.; Mr. W. L. Collinson, Liverpool; Committee for the Study of Special Diseases, Cambridge University, Secretary of; Carlisle, Medical Officer of Health of; Dr. Richard Caton, Liverpool; Mr. J. G. Carruthers, Lond.; Mr. H. B. Cockrell, Liverpool; Dr. E. Curtin, Bournemouth; Cross Letter Case Co., Birmingham; Cancer Hospital (Free), Lond., Secretary of; Mr. E. J. Craske, Slough.

D.—Dr. G. H. R. Dabbs, Lond.; Mr. Donald Duff, Glasgow; Dr. D. Leighton Davies; Mr. J. Delahunt, Lond.; Messrs. Dawson and Sons, Lond.

E.—Dr. G. H. Evans, San Francisco.

F.—Dr. A. W. Fuller, Lond.; Mr. G. Fischer, Jena; Messrs. Farebrother, Ellis, and Co., Lond.; Dr. J. K. Frost Hereford.

G.—Dr. W. P. Gowland, Isleworth; Messrs. W. and A. Gilbey, Lond.; Mr. H. M. W. Gray, Aberdeen; Sir W. R. Gowers, Lond.

H.—Dr. S. H. Habershon, Lond.; Mr. Robert Hutchison, Lond.; Humanitarian League, Lond.; Messrs. Hedley and Co., Lond.; Mr. A. C. Huckstepp, Birmingham; H. C.; Mr. S. Harvey, Lond.; Mr. J. Harris, Lond.

J.—Mr. R. J. Jones, Glasgow; Mr. F. Jenny, Lond.; Mr. George Jackson, Plymouth; Dr. Robert Jones, Claybury.

K.—Mr. R. Lawford Knaggs, Leeds; Messrs. C. Knight and Co., Lond.; Messrs. R. A. Knight and Co., Lond.; Mr. A. S. Kennedy, Lond.

L.—Mr. H. K. Lewis, Lond.; Leith Hospital, Secretary of; Messrs. Lee and Nightingale, Liverpool; Dr. David Lawson, Nordrach-on-Dee; London and Counties Medical Protection Society, General Secretary of; Dr. Graham Little Lond.; Leeds and West Riding Medico-Chirurgical Society, Junior Secretary of; Liverpool School of Tropical Medicine, Incorporated, Secretary of.

M.—Mr. G. B. Millson, Lond.; Dr. C. Mercier, Lond.; Dr. Charles Mackey, Lancaster; Mr. Maurice Mosely, Lond.; Dr. Monprofit, Angers; Mr. John Moxon, Newport; Dr. Thomas J. Mays, Philadelphia; Mr. S. McIntosh MacRoberts, Toronto; Mr. A. Ernest Maylard, Glasgow; *The Morningside Mirror*; *The Motor Car Journal*, Lond.; Rev. R. H. Manley, Stoke Climsland; Dr. A. McGregor, Glasgow; Mr. H. W. Makin, Manchester; Dr. C. Muthu, Wells; Messrs. Middleton and Cracknell, Lond.; Manchester Medical Agency.

N.—Dr. J. T. C. Nash, Southend-on-Sea; North London or University College Hospital, Secretary of; North Staffordshire Infirmary, Hartshill, Secretary of; Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.

O.—Messrs. Oppenheimer, Son, and Co., Lond.; Dr. R. Owen, Brymbo.

P.—Dr. F. J. Poynton, Lond.; Dr. Herbert J. Paterson, Lond.; Lieutenant-Colonel J. T. W. Perowne, Lond.; Mr. T. Prince, Lond.; Dr. F. H. Preston, Lond.; Dr. Eric Pritchard, Lond.; Mr. D'Arcy Power, Lond.; Captain J. R. P. Purchas, Lond.; Messrs. Peacock and Hadley, Lond.; Mr. W. J. Piper, jun., Derby.

Q.—Mr. P. Quin, Boston, U.S.A.

R.—Royal National Hospital for Consumption for Ireland, Dublin, Hon. Secretary of; Messrs. Reynolds and Branson, Leeds; Rhayader Union, Clerk of; Royal Surrey County Hospital, Guildford, Secretary of; Rotherham Hospital, Secretary of; Royal Institute of Public Health, Lond., Hon. Secretary of; Royal Mail Steam Packet Co., Lond., Chairman of; Royal Dental Hospital, Lond., Secretary of; Mr. H. Powell Rees, Lond.

S.—Mr. James Sherren, Lond.; Society for the Study of Disease in Children, Lond., Hon. Secretary of; Mr. G. Steinheil, Paris; Mr. R. Sutton, Lond.; Mr. F. Schröder, Westend, Germany; Messrs. J. P. Segg and Co., Lond.; Sanitary Inspectors Examination Board, Lond., Hon. Secretary of; Society of Apothecaries of London, Secretary of; Dr. B. B. Sapwell, Aylsham; Messrs. G. Street and Co., Lond.; Dr. W. K. Sibley, Lond.; Dr. Robert Saundby, Birmingham; Sheffield Corporation, Clerk of; Messrs. Squire and Sons, Lond.; *Southend Echo*, Manager of; Scholastic, Clerical, &c., Association, Lond.; Sacco, Lond., Manager of; Dr. H. R. D. Spitta, Lond.; Dr. Lauriston E. Shaw, Lond.; Dr. E. I. Spriggs, Lond.

T.—Dr. John C. Thresh, Lond.; Messrs. Tuckett and Son, Lond.; Mr. W. Thomas, Pontefract.

U.—University of London, Principal of.

V.—Mr. A. Vander Veer, New York.

W.—Mr. J. Williams, Bradford; Mr. A. P. Walters, Island of Rigg; Messrs. H. Wilson and Son, Lond.; Wills, Ltd., Lond.; Messrs. W. Wood and Co., New York; West Kent General Hospital, Maidstone, Secretary of; Mrs J. H. Warmington, Cambridge; Messrs. F. Williams and Co., Lond.; Messrs. J. Wiley and Sons, New York; Mr. W. H. Griffin Wilkes, Birmingham; Mr. F. C. Wallis, Lond.; Dr. W. Essex Wynter, Lond.; Dr. H. W. Webber, Plymouth.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. R. Arnold, Lond.; Addenbrooke's Hospital, Cambridge, Secretary of; A. L.; A. B. S.

B.—Mr. J. E. L. Bates, Lond.; Mr. E. Bold, Swinton; *Bio-Chemical Journal*, Liverpool, Editor of; *Bryant Press*, Toronto; Dr. G. P. Bletchley, Nailsworth; Miss Bretherton, Lond.; Messrs. Burroughs Wellcome and Co., Lond.; Dr. G. Bellei, Bologna; Messrs. J. H. Booty and Son, Lond.; Mr. W. Bubb, Powick.

C.—Mr. A. H. Cheatle, Lond.; Messrs. Cooper and Co., Liverpool; C. J.; Messrs. Chandler, Ingram, and Bell, Toronto; Messrs. Cassell and Co., Lond.; Coventry, &c., Hospital, Secretary of; C. P. H.; C. B. T.; *Courier of Medicine*, St. Louis; Messrs Callard and Co., Lond.; The Coppice, Nottingham, Medical Superintendent of.

D.—Dr. H. E. Daniell, Wokingham; Mr. R. Dodson, St. Leonards-on-Sea; Doctor, Market Drayton; D. F. S.; Mr. E. Dee, Dungarvan; D. M. J.

E.—Messrs. Evans, Sons, Lescher, and Webb, Lond.; *East Kent Gazette*, Sittingbourne, Manager of; Mr. J. Evans, Bilston; Electrosol Institute, Lond.

F.—F. J. E. R.; F. J. R. A.

G.—Mr. H. H. Gunnell, Peterchurch; Glasgow Corporation, Accountant of; G. B.; Dr. J. W. Geddes, Middlesbrough; Dr. A. W. Gilchrist, Nice; G. N. A.

H.—Dr. J. Hunter, Linlithgow; Dr. R. A. Houseman, Allahabad; Messrs. Harman and Co., Lond.; Messrs. Rough, Hoseason, and Co., Manchester; Mr. R. O. Henderson, Adaminaby, New South Wales; Major S. J. Hayman, R.A.M.C., Ipswich; Messrs. T. Holland and Son, Lond.; Mr. R. R. Huxtable, Piddletown; Mr. T. H. Holmes, Sheffield; Mr. W. H. Haw, Knysna, Cape Colony; Dr. G. H. Hume, Newcastle-on-Tyne; Major F. A. Holmden, D.S.O., Edenbridge; Messrs. Hooper and Co., Lond.; H. T. W.; H. H. T.; Dr. Herschel, Bordighera.

I.—Ipswich Corporation, Accountant of.

J.—Mr. T. R. Judson, Liverpool; Dr. A. D. Jollye, Hemel Hempstead; Mr. G. H. Jones, Deddington; J. R. S.

K.—Mr. T. Kingscote, Lond.; Messrs. T. Kirby and Sons, Walsall.

L.—Dr. L. Liebster, Lond.; L. W.; Locum Tenens, Leicester; Leicester Guardians, Clerk to; Captain G. Lamb, I.M.S., Bombay.

M.—Mr. A. G. Mears, Lond.; Mr. H. M. Miller, Birmingham; Mr. W. J. Middelton, Bournemouth; M. B., Buckhurst Hill; Male Nurses' Temperance Co-operation, Lond., Secretary of; Mr. S. K. Mukerji, Allahabad; M. W. G.; Dr. Mitchell, Lond.; Mr. S. S. Menzies, Lond.; Dr. Myra Mackenzie, Hanley; Mr. R. Mosse, Berlin; Mr. H. W. Makin, Manchester.

N.—Mr. P. C. Nandi, Calcutta; Mr. J. S. Nolan, Belwas; National Dental Hospital, Lond., Secretary of; National Bank of India, Lond., Manager of.

P.—Mr. J. S. Parkes, Harlington; Mr. Y. J. Pentland, Edinburgh; Miss Patten, Lond.; P. H. S.; Mr. F. E. Potter, Lond.; Mr. W. W. Payne, Lond.

R.—Dr. R. G. Robson, Jodhpur, India; Royal Devon and Exeter Hospital, Secretary of; Messrs. E. J. Reid and Co., Lond.; Messrs. Richardson and Co., Lond.

S.—Mr. C. E. Scudamore, Lond.; Messrs. Spiers and Pond, Lond.; Mr. L. E. Stamm, Lond.; Mr. C. Scholl, Liverpool; Mr. M. H. Stawt, Bristol; Messrs. Sherratt and Hughes, Manchester; Dr. D. S. Smith, Lesmahagow; Surgeon, Bulham; Messrs. E. R. Squibb and Son, New York; Mr. B. R. Sawhney, Jammu; Mr. T. Saunders, Okehampton; Messrs. Savory and Moore, Lond.; Major H. L. Lefroy Stein, Monkstown; Dr. S. Stockman, Lond.; Lieutenant-Colonel H. W. Stevenson, I.M.S., Hyderabad; Mr. H. F. Skrimshire, Ascot; Dr. H. L. D. Stephens, Lond.; S. D. S., Lond.; Smith's Advertising Agency, Lond.

T.—Mr. J. B. Tindall, Preston; Messrs. J. Timpson and Co., Lond.; Mr. J. Thin, Edinburgh.

U.—University College, Bristol, Registrar of.

V.—Messrs. G. Van Abbott and Sons, Lond.

W.—Mr. D. J. Wagstaff, Potton; Mr. R. W. Waring, Cavendish; Messrs. Willows, Francis, Butler, and Thompson, Lond.; Messrs. Williams and Sons, Cardiff; W. S. R.; W. B.; W. H. S.

FORMAWN (CHLORMETHYLMENTHYLETHER) $C_{10}H_{19}O\,CH_2Cl$.

is the result of long scientific research and skilled clinical experience and forms a reliable remedy

for NOSE CATARRH.

Numerous members of the medical faculty declare Formawn to be the ideal remedy for colds in the head.

For slight cases:
FORMAWN NOSE WOOL.
7½d. per box (dainty pocket size).

For obstinate cases:
FORMAWN INHALER.
2/- per box, including Tablets.

Samples and full particulars will be forwarded free on application to

THE CHEMICAL WORKS, 26, Southwark Bridge Road, London, S.E.